



# **HY11S14**

## **HYCON-IDE Software**

### **User's Manual**

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## 1. HYCON-IDE Overview

### 1.1 Introduction

To facilitate the process of product development, HYCON-IDE development environment is provided to deploy HYCON's full range of MCUs. Customers can implement the end-product's in-circuit emulation on this platform and program the code onto HY series' OTP products.

### 1.2 HYCON-IDE Installation and System Requirement

**The minimum requirement of system configuration to operate HYCON-IDE:**

- PC Hardware Request
  - PC compatible machine with PENTIUM® CPU
  - 128 MB Memory ( 256MB is recommended )
  - 10 GB Hard Disk Space
  
- Supporting Products
  - HY11P12, HY11P13, HY11P14
  - HY11P22, HY11P23, HY11P24
  - HY11P32, HY11P33, HY11P35, HY11P36
  - HY11P41, HY11P42
  - HY11P52
  
- Supporting Hardware Model No.
  - HY11S14-DK02 developing kit
  
- Supporting Software Version
  - HYCON-IDE V2.0 above

- OS
  - Windows 98SE
  - Windows 2000
  - Windows XP
  - Windows Vista
  - Windows 7
  - Support x86, 32bit system, not support 64bit system.
- Applicable Interface
  - USB Port

### 1.3 Installation and Uninstallation

#### 1.3.1 Installation

Note that some Windows operating system may request the HYCON-IDE to be installed in the Supervisor Privilege.

- Insert the HYCON-IDE CD into the CD ROM drive and find the file in the CD ROM or file to execute Setup.exe.
- Following the dialog step by step to continue setup procedures. As shown in Figure 1.
- First-time installation must initiate USB driver program, the setup procedures are as Figure 2 shown.

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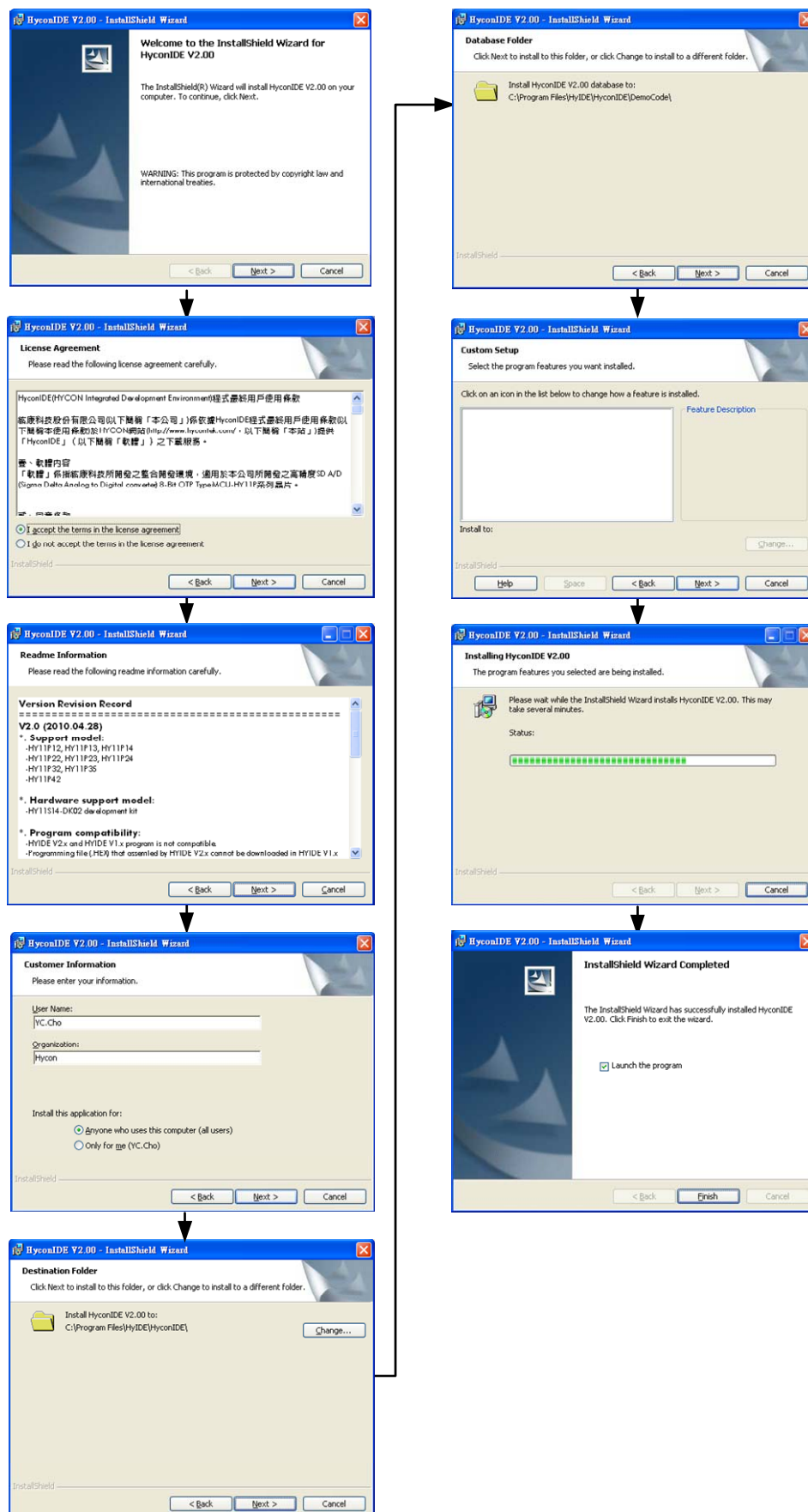


Figure 1

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## HYCON-IDE Software User's Manual



Figure 2



### 1.3.2 Uninstallation

Please remove the file "HYCON-IDEV2" in "Add/Remove" under Control Panel.

### 1.4 Register

1. Customers use ICE hardware emulation or OTP programming for the first time.
2. If the dialog appeared or abnormal IDE crash occurred, customers must conduct re-register action.

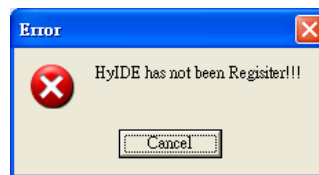


Figure 3

#### Register Procedures

1. Please check the HyIDE Machine Number (HyIDE Code) on the parcel and send the number by e-mail or on-line register. HYCON will send back another customer register code to you.
2. Connect the HyIDE Control Board to PC through USB interface.
3. Execute HYCON-IDE software (HYCONIDE.exe). Go to "Option" and press "Register".
4. Fill in the customer code in "Register Number" and click "Write" to start.

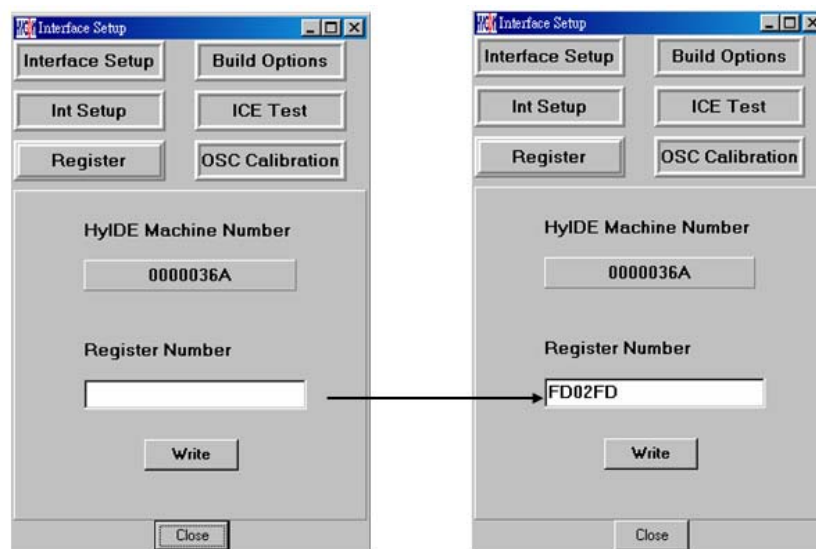


Figure 4

5. If the process is successful, a dialog will be shown.

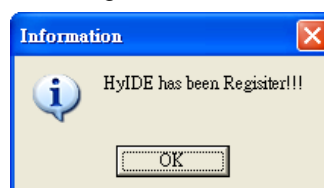


Figure 5

6. If the process is fail, a dialog will be shown as Figure 6.



Figure 6

7. Once the register is succeeded, Customers do not have to worry that other numbers may be written into the "Register Number".

### 1.5 Use Demo Code to Guide User Manual

- Start C:\Program Files\HyIDE\HYCONIDE\DemoCode\KitchenScale\KitchFor11P13.asm
- Set the file as assembly main file
- Assembly start to progress program debug

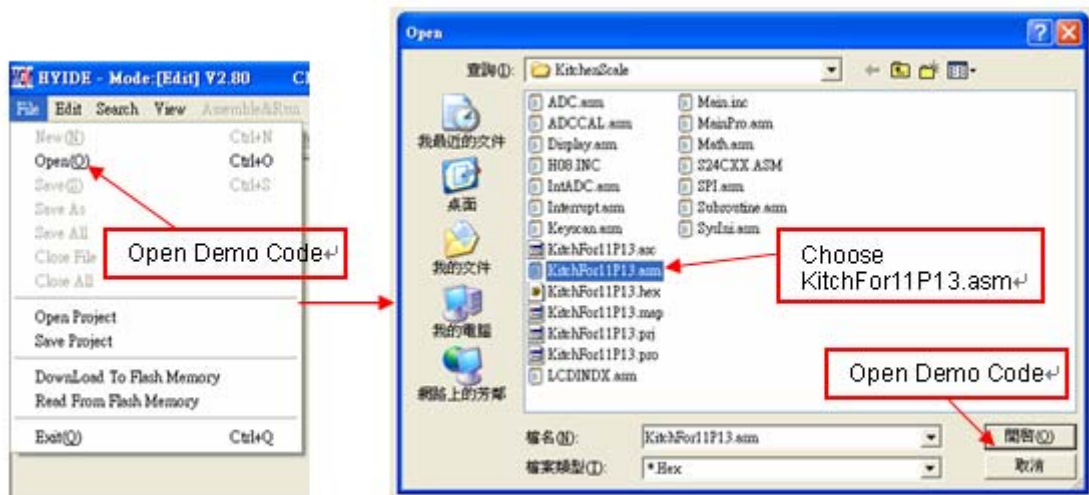


Figure 7

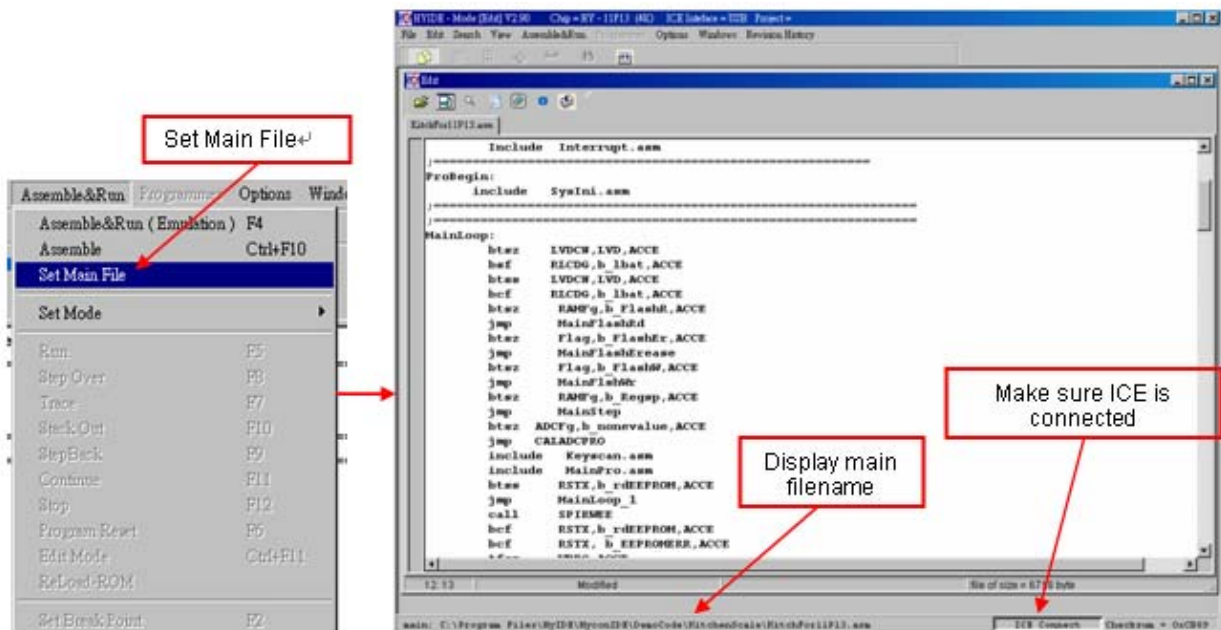
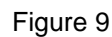


Figure 8



- ## 1.6 Demo Code Operation

- APD-HYIDE006-V04\_EN  
page 12

## 2. HYCON-IDE Interface Description

### 2.1 HYCON-IDE Edit Interface

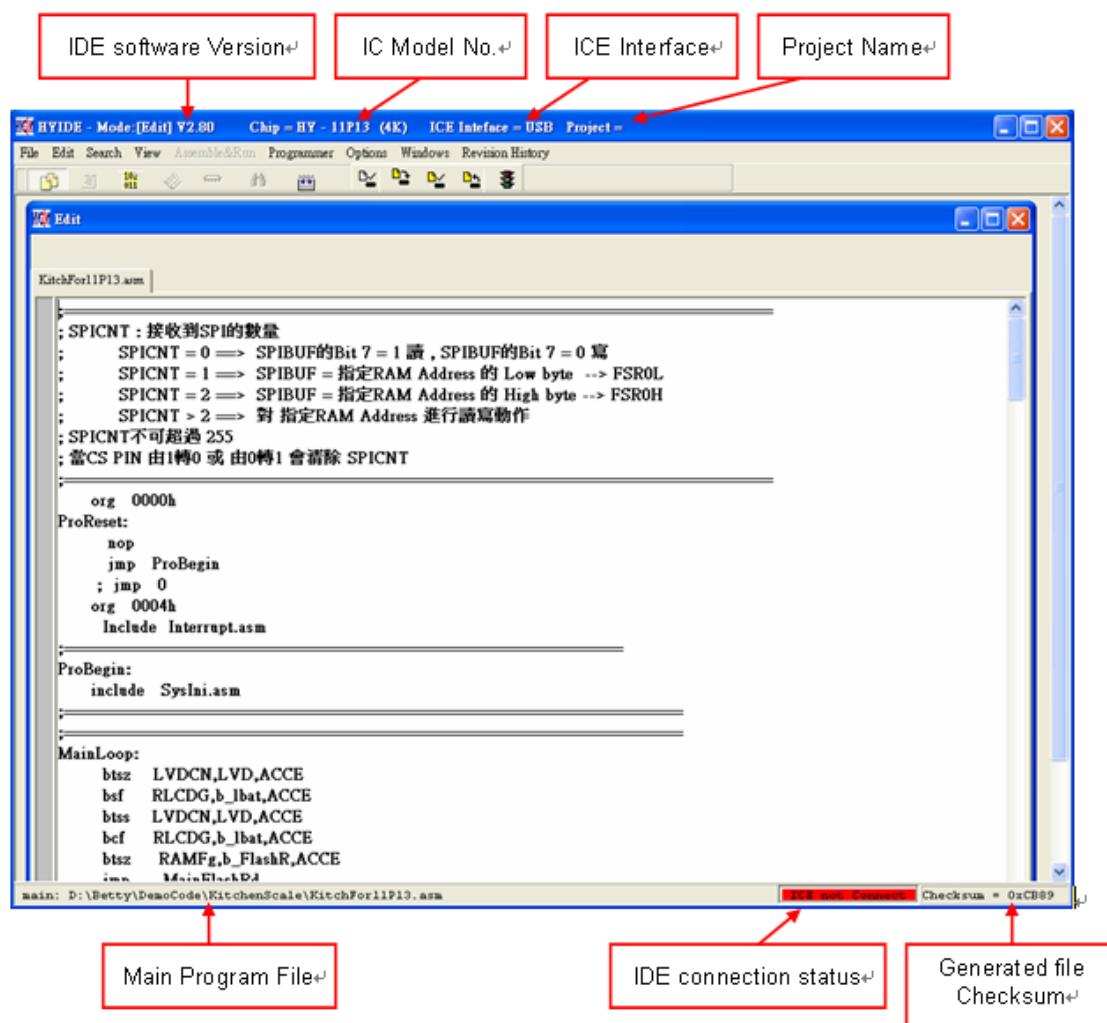







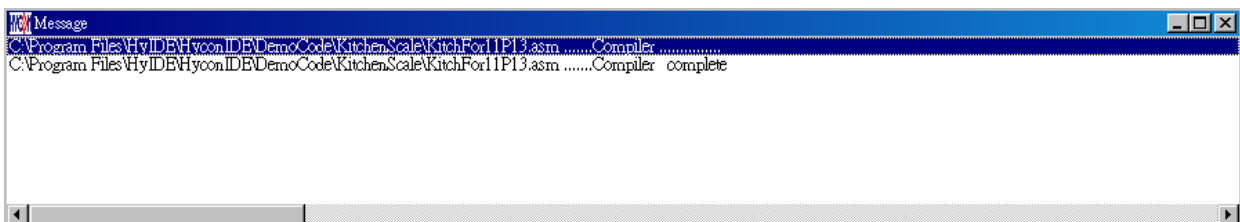


Figure 10

### 2.1.1 Edit Window

- Open   
Open an existing file.
- Label Setting   
Set label. When open too many files, this icon helps to return to the label setting place quickly.
- Jump to Label   
Jump to where to label has been placed.
- Find   
Search the entered word.
- Search the specified word. 
- Switch Display Window   
When too many files are opened, this icon helps to command file switching.
- Assembly   
Only assembly is executed. It will not get into program debug status.  
The information dialog may pop up after assembly accomplished.



### 2.1.2 File Menu

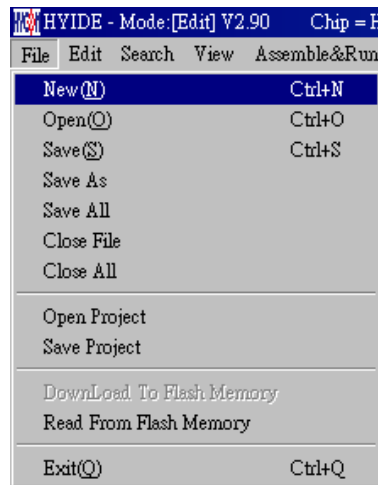


Figure 11

- New → Create a new file.
- Open → Open an existing file.
- Save → Write the active window data to the active file.
- Save As → Write the active window data to the specified file.
- Save All → Write all windows data to the corresponding opened files.
- Open Project → Project includes IC part no., IDE interface, Assembly main filename, Active opened status, and Checksum. Project status will be loaded in after the project is opened.
- Save Project → Write the active project to the active project file.
- Exit → Close the current active HYCON-IDE program.

### 2.1.3 Edit Menu

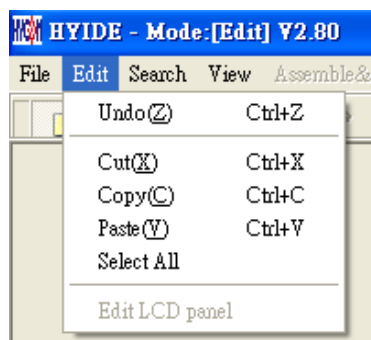


Figure 12

Under editing the file:

- Undo → Cancel the previous editing operation.
- Cut → Remove the selected lines from the file.
- Copy → Place a copy of the selected lines.
- Paste → Paste the copy lines to the present insertion point.
- Select All → Select all lines in the active file.

### 2.1.4 View Menu

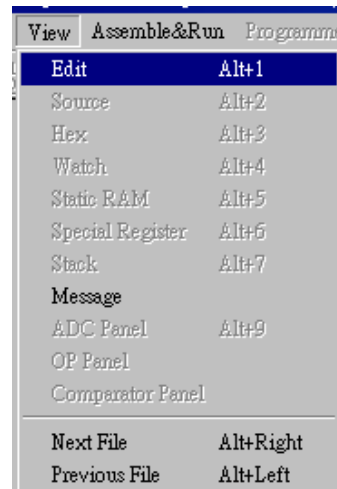


Figure 13

- Edit → Appoint the edit window as the present active window.
- Next File → Appoint the next file as the present active window.
- Previous File → Appoint the previous file as the present active window.

### 2.1.5 Assemble & Run Menu

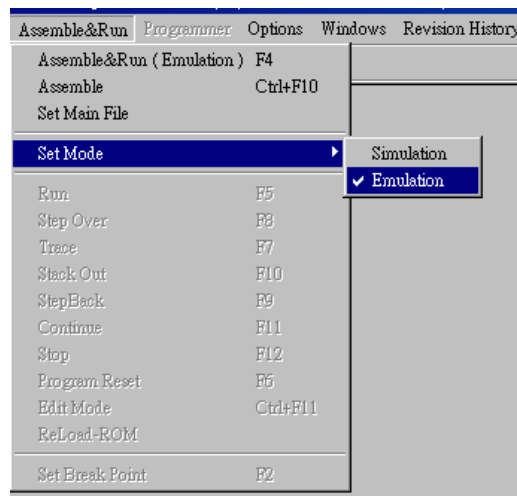


Figure 14

- Assemble & Run (Emulation) → Assemble Source Code and execute program debug mode.
- Assemble → Only execute the program assembly, program debug is not executed. This assembler will not generate error message according to IC part no. Error message will show up when the lines is error. It is usually used in generating OBJ Code (Object).
- Set Main File → Set the file as assembly main file. Files will be named after compiler generated file name, such as Hex, MAP, ASC...etc.
- Debug → Debug through software or hardware is selective.



### 2.1.6 Options Menu

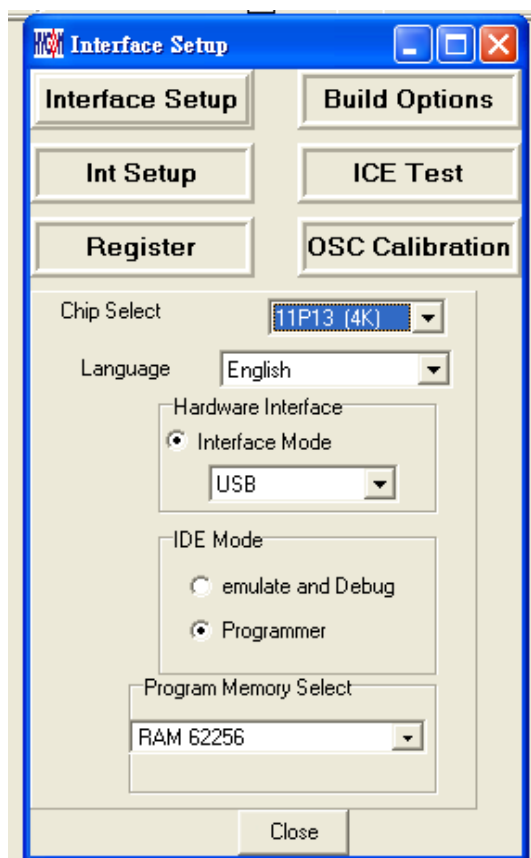


Figure 15

- **Interface Setup**

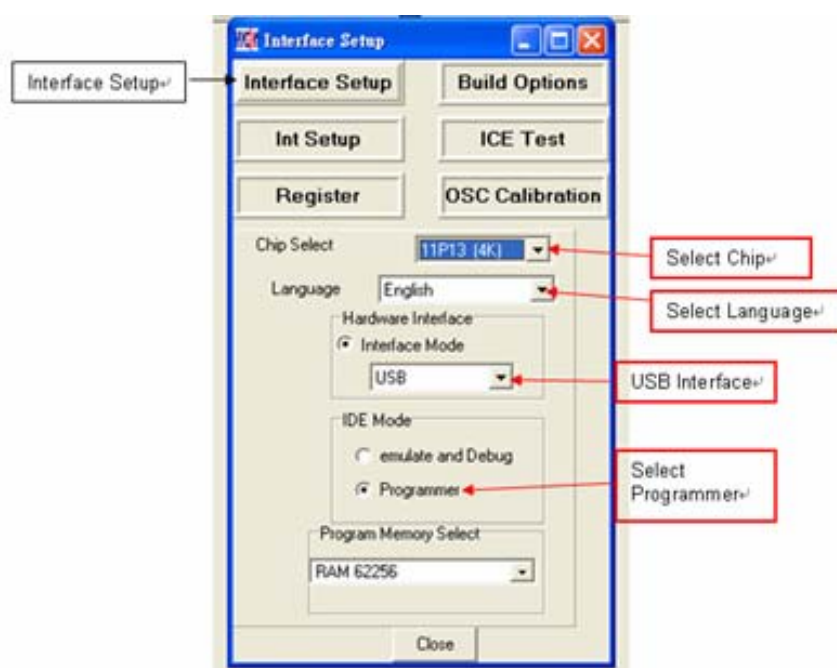


Figure 16

- Chip Select: Select IC part no. Compiler will assemble the selected part no.'s program file. It will determine whether there is any misuse or non-existing Register or SRAM, or has the program exceeded the ROM Size.
- Language option: English and Chinese interface are selectable.
- Communication interface option: Select IDE communication interface.
- Mode option: Two choices, Emulate and debug and program.

### ● Build Options

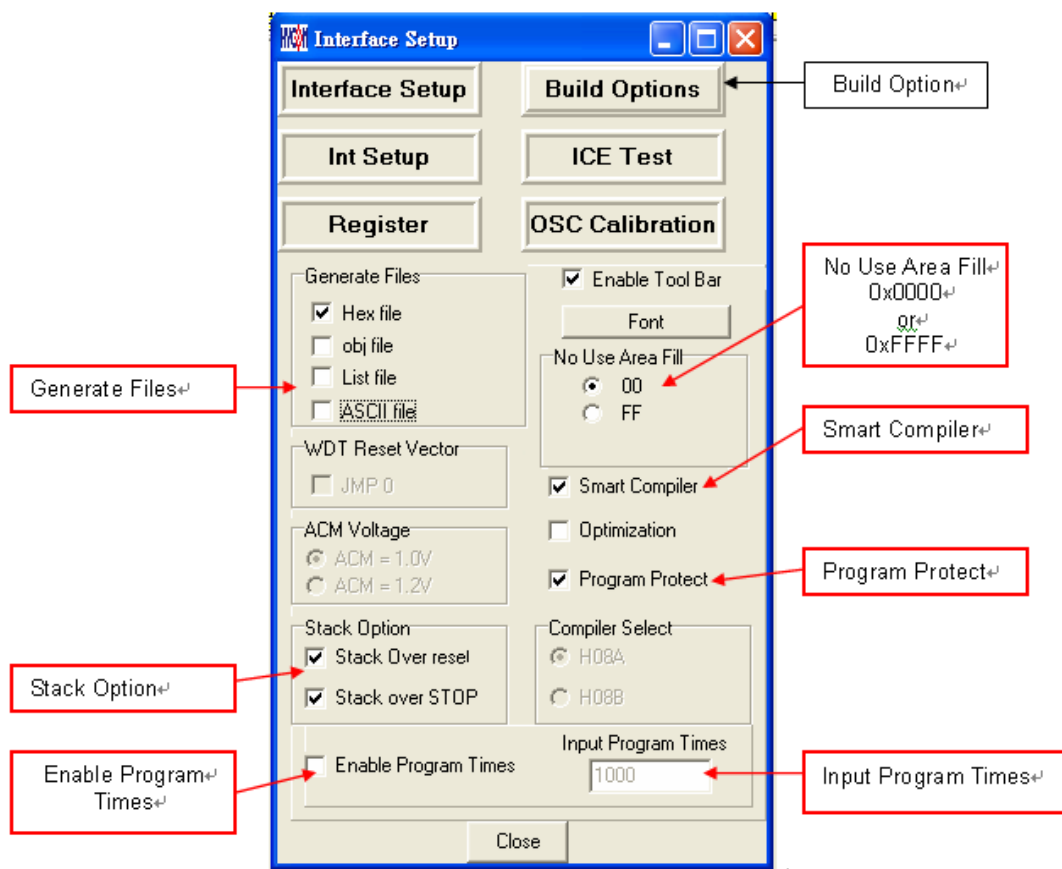


Figure 17

- Assembler generated extension: it is selectable to produce below file format.
  1. Binary file : Hex
  2. Obj file : obj
  3. List file: lst
  4. ADCII file: asc
- Stack operation: Choose to replace the program after stack overflow. When this option is chosen, Compiler will add to Hex, it will be programmed in to OTP.
- Program number of times limit: Please refer to "4.1 Interface Setup" under chapter 4. Programming Window.
- Font option: Choose editor's fonts.

- Fill unused zone: Fill the unused zone with 0x0000 or 0xFFFF in the program.
- Simplified assemble: Simplified assemble function is selectable. When JMP or CALL is smaller than 2K, it will automatically transform to RJ or RCALL. If the arguments of CALL are set, it will not transform to RCALL.
- Program protection: Please refer to “4.1 Interface Setup” under chapter 4. Programming Window.

### ● Interrupt Setting

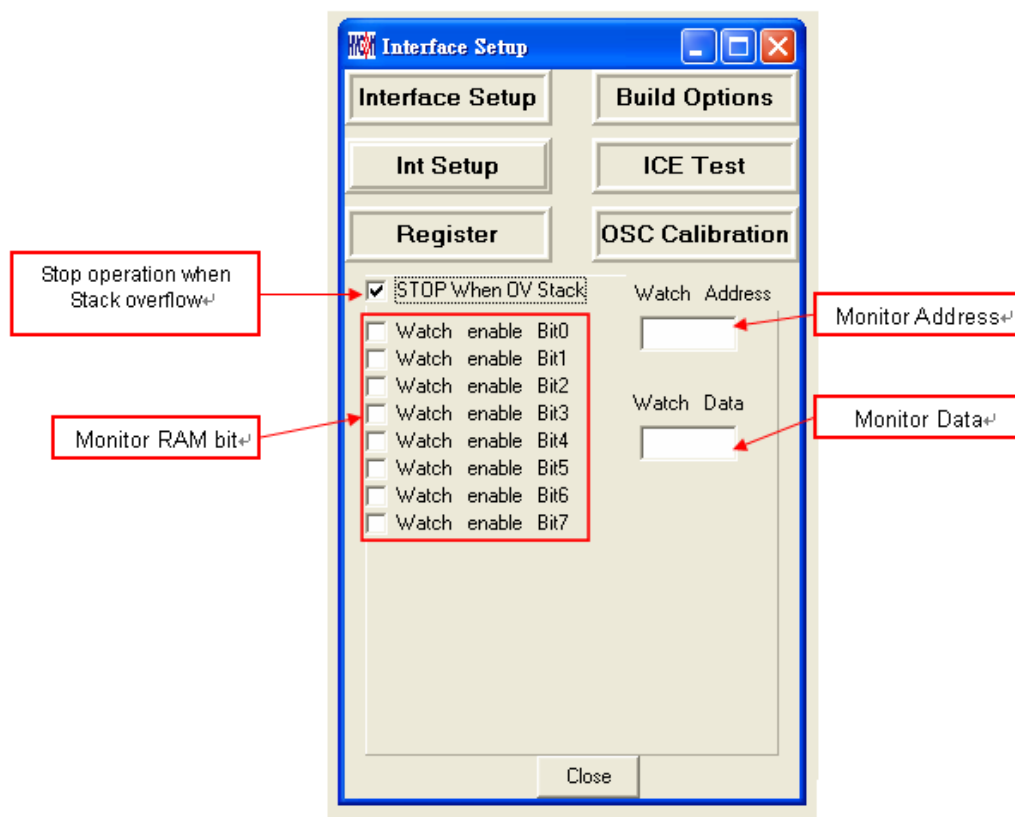


Figure 18

- Stop operation when Stack overflow: IDE will stop when Stack overflow.
- Monitor address: Select the monitored Register or RAM. The program will stop when the program executed RAM or Register value equals to the monitored Data.
- Monitor Data: Monitor value is set when the monitor Data is filled up.
- Monitor RAM bit: Monitor function will be activated if the monitor bit is marked on. The program will stop when the bit of Data value equals to the marked on bit.

- ICE Test

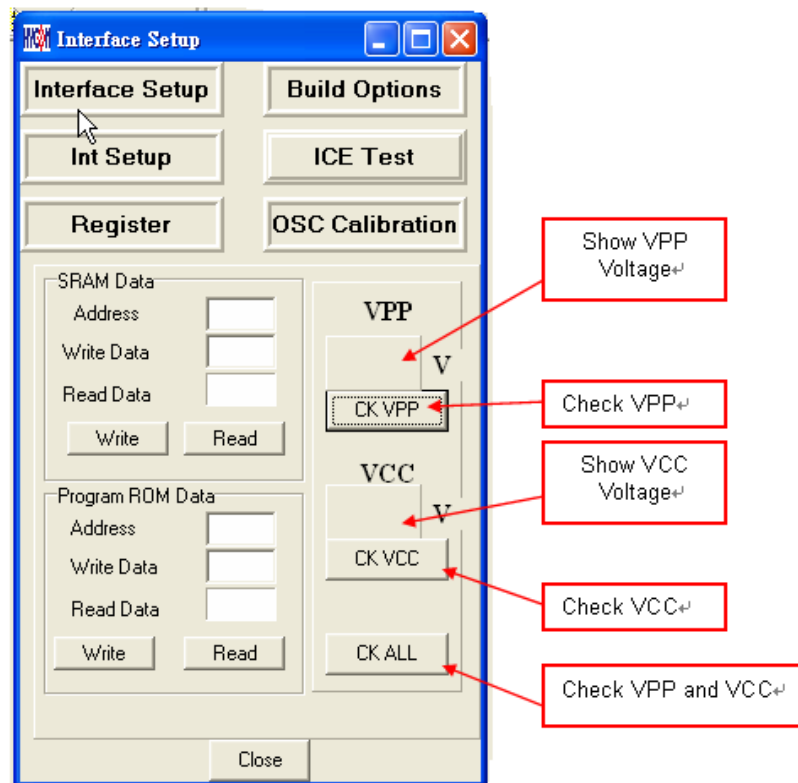


Figure 19

- OSC Calibration

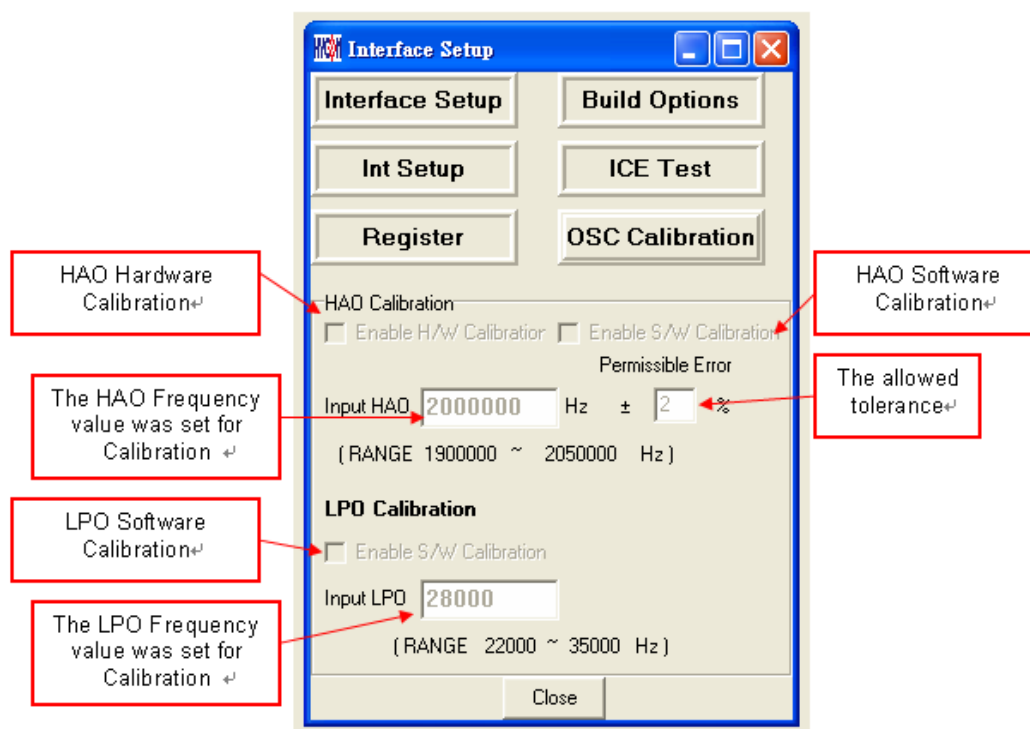


Figure 20

### 2.1.7 Window

The window can be displayed horizontally or vertically.

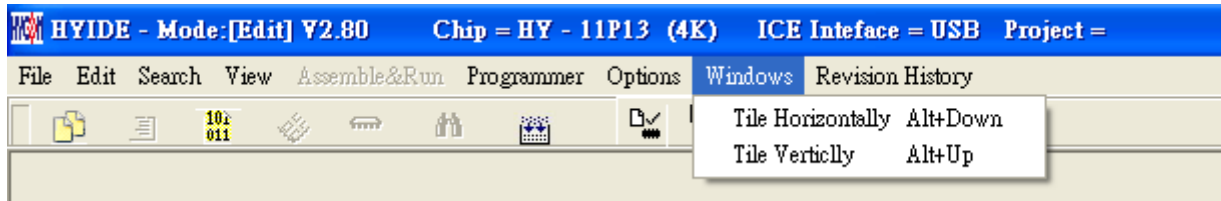


Figure 21

### 2.1.8 Program Structure

Before editing new program, user must select IC part number through interface setup;

Different IC will have different Instruction Set, according to IC part number definition; it is classified as H08A and H08B instruction set;

User can refer to the appendix software demo code, Chapter 1.6 gives illustration of demo code usage.

Users can refer to following program structure to start writing program. Basic structure description is listed as below:

- Program Name Definition as: **\*\*\*.ASM**
- Register Name or RAM Definition as: **\*\*\*.INC**
- Many program contents are listed below:
  - "Main.asm", "Initial.asm", "Interrupt.asm", "Sub.asm", "Main.inc", "H08.inc"
- "Main.asm" structure:
 

<pre> ORG      00H JMP      BEGIN </pre>	<pre> ;Program name can be any name ;Declare program start ;Jump to main program </pre>
<pre> ORG      04H Include  Interrupt.asm </pre>	<pre> ;Declare interrupt flag address ;Cite "Interrupt.asm" interrupt vice program ; ;Include file max. 100 </pre>
<pre> BEGIN: Include  Initial.asm JMP     T1 ... T1: NOP </pre>	<pre> ;Start Main program. Label name definition can be any word ;Cite "Initial.asm" hardware initial vice program ;Jump to T1 vice program </pre>
<pre> Include  Sub.asm </pre>	<pre> ;Cite "Sub.asm" vice program </pre>
<pre> Include  H08.inc Include  Main.inc END </pre>	<pre> ;HY11P series special register name, address definition ;RAM name, address definition ;Program end </pre>
- Reference Document:
  - IP User Manual: [User's Guide](#)
  - Instruction Set User Manual: H08A Instruction Set Manual or H08B Instruction Set Manual
  - HYCON-IDE Compiler User Manual: [HY-MCU COMPILER](#)

### 2.1.9 Self-defined Instruction

- HYCON-IDE included user self-defined instruction function since **V1.6**. This function provides user to self-define HY11P series instruction as the familiar MCU instructions.
- Usage description:
  1. All self-defined instruction function is installed under: Inst.txt file. It is separately as two rows.  
The first instruction (first row) of every row is origin HYCON instruction name; users can not make amendment to it. The second instruction (second row) is "User" self-defined instruction name.
  2. First and second instruction can only be separated by space, multi-space or Tab.
  3. Second instruction can be followed by semicolon (;) as remark.
  4. Second instruction name can be the same as the first one.
  5. The name of second instruction can not be defined as any of HYCON origin instruction name except the instruction in the same row. Otherwise, it is deemed as invalid and will adopt the origin instruction name to compile program.
  6. After users self-define the second instruction name, the first or second instruction name can be used when program compiling.
  7. Every row can only has **one** self-defined instruction name, any repeated instruction name will be deemed as invalid.
- Example:  
JMP JUMP JMM JPP JU ;~~×~~ error define method
- Repeated defined instruction or self-define instruction will be deemed as invalid.  
Example:  
JMP JUMP  
JMP JPP ;~~×~~ instruction name redefine. JUMP will be deemed as invalid instruction, only JPP is valid.  
JPP JU ;~~×~~ cannot use self-defined name to redefine  
JMP JN ;~~×~~ cannot be defined as HYCON origin existed instruction name  
Correct definition is:  
JMP JUMP

### 3. HYCON-IDE Debug Interface

It can be classified into hardware debug and software debug.

- Hardware debug  
The indication column is blue
- Software debug  
The indication column is green

The screenshot displays the HYCON-IDE Emulation interface with the following components:

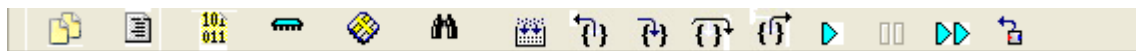
- Assembly Code Window:** Shows assembly instructions for 'KitchFor11P13.asm'. Instructions include `btsz LVDON,LVD,ACCE`, `def RLCDG,b_lbat,ACCE`, `btsz RAMFg,b_FlashR,ACCE`, `jmp MainFlashRd`, `btsz Flag,b_FlashEr,ACCE`, `jmp MainFlashErase`, `btsz Flag,b_FlashW,ACCE`, `jmp MainFlashWr`, `btsz RAMFg,b_Regsp,ACCE`, `jmp MainStep`, and `btsz ADCFg,b_Regsp,ACCE`.
- Program Memory Window:** Displays memory addresses and instructions. The instruction at address 06BC is highlighted in blue: `06BC 7EBC RJ 08Ch`. Other instructions include `06B8 3AB9 INF 89h, 1, 0 M(89)=0`, `06B9 7EBF RJ 68Fh`, `06BA C875 RCALL 75h`, `06BB C8B3 RCALL B3h`, `06BD 0600 MVL 0h`, `06BE 6640 MVL 40h, 1, 0 M(40)=44`, `06BF 0600 MVL 0h`, `06C0 6641 MVL 41h, 1, 0 M(41)=C0`, and `06C1 060F MVL Fh`.
- 11P13Special Register Window:** Shows special registers. The 'Byte' section includes `IND0: M[05A]=00`, `Program Counter: 6BC`, `IND1: M[085]=10`, `WREG 7F`, and `Cycle: 0000A69E`. The 'Word' section includes `PLUSW1`, `WREG`, `BSECN`, `ADCRH`, `ADCRM`, `ADCR1`, `TMAR`, `PRC`, and `TMCR`.
- Hy\_WATCH Window:** Displays watchpoints. The table shows:
 

Name	Hex(H->)	Bin/Refend Symbol	Reset	Ln
ADOCN1	9E	10011110	0	02
ADOCN2	0D	00001101	0	02
ADOCN3	B0	11100000	0	02

Red arrows indicate the flow of information: from the assembly code window to the program memory window, then to the special registers window, and finally to the Hy\_WATCH window.



### 3.1 Fast Execution



#### ● Fast Window Switch

(1) Switch to Edit window

(2) Switch to Source window

(3) Switch to Hex window

addr	code	instruction
0000	79E8	RJ 1E8h
0001	0000	NOP
0002	7FFD	RJ 7FDh
0003	0000	NOP
0004	D00F	MVFF Fh
0005	F0FF	NOFF FFh
0006	D010	MVFF 10h
0007	F0FE	NOFF FEh
0008	D011	MVFF 11h

(4) Switch to Ram window

Addr	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
000	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
010	5A	00	85	-	-	-	00	00	00	-	00	00	-	03	2
020	7B	00	18	00	00	-	00	00	-	A5	01	00	10	00	-
030	00	01	00	00	00	00	00	00	-	00	00	00	00	00	0
040	00	40	00	00	FF	00	00	DF	00	00	FF	FF	FF	FF	-
050	-	FF	00	00	00	7A	63	7A	3E	7B	10	00	00	00	0
060	00	FF	-	-	-	-	-	-	-	-	-	-	-	80	0

(5) Switch to Reg window










Register	Value
IND0: M[05A]	10
IND1: M[085]	10
Program Counter	0
WREG A5	Cycle: 0000000E

(6) Switch to Watch window

Name	Addr	Hex(H -> I)	Bin/Refered Symbol



- **Fast Debug**

- (1) Step back 
- (2) Trace (Enter into Macro/vice program) 
- (3) Step over (Not enter into Macro/vice program) 
- (4) Skip Call 
- (5) Execute (Free RUN) 
- (6) Pause 
- (7) Continue 
- (8) Program replace 
- (9) Back to edit mode 

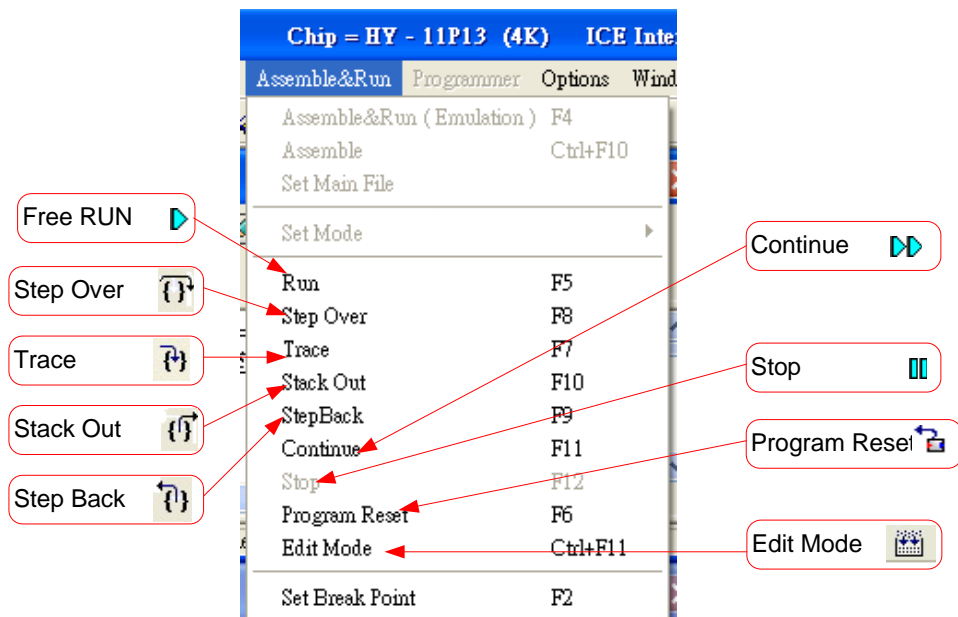


Figure 22

- **Two methods to set or remove interrupt:**

1. Use mouse to select interrupt place in program code window or machine code window, press "F2" button to set to remove interrupt.
2. Use mouse to select interrupt place in program code window or machine code window, double click the left key to set or remove interrupt

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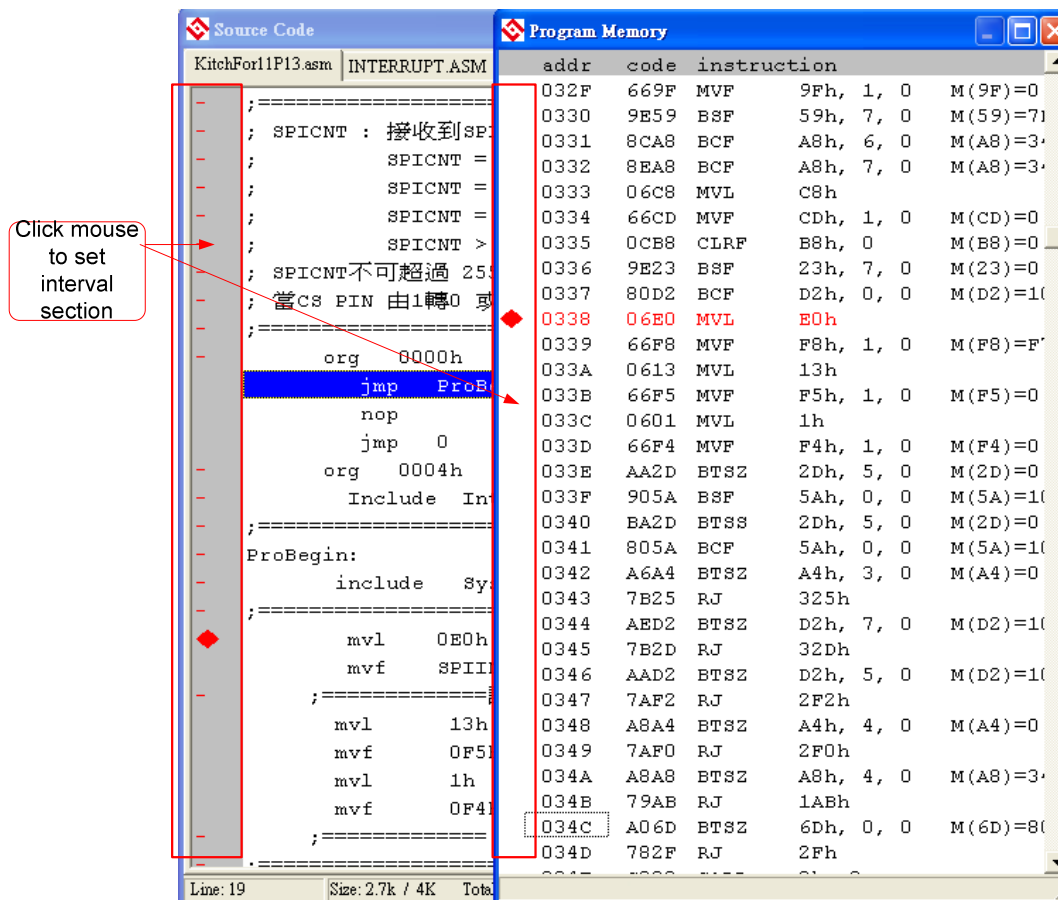


Figure 22

### 3.2 RAM Window

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
000	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
010	5A	00	85	-	-	-	00	00	00	-	00	00	-	03	2E	7F
020	7B	00	18	00	00	-	00	00	-	A5	01	00	10	00	-	-
030	00	01	00	00	00	00	00	00	-	00	00	00	00	00	00	00
040	00	40	00	00	FF	00	00	DF	00	00	FF	FF	FF	FF	-	30
050	-	FF	00	00	00	7A	63	7A	3E	7B	10	00	00	00	03	-
060	00	FF	-	-	-	-	-	-	-	-	-	-	-	80	00	00
070	00	00	00	-	1C	00	-	00	00	00	-	-	-	-	-	-
080	A5	A5	A5	A5	00	10	09	02	03	04	03	00	7B	00	00	00
090	00	00	00	00	00	29	43	03	00	00	00	00	00	00	00	00
0A0	00	00	00	00	00	00	01	00	34	00	00	00	00	07	EF	DE
0B0	79	DE	00	00	00	00	A0	FB	00	00	00	00	00	00	00	00
0C0	00	00	00	00	01	00	00	00	00	00	00	00	5E	00	00	00
0D0	00	00	10	FD	D8	79	DE	D8	79	DE	BB	79	DE	0A	7A	DE
0E0	EF	79	DE	A8	79	DE	0C	7A	DE	D4	79	DE	00	04	00	00
0F0	08	00	E7	79	00	00	FF	00	F7	00	00	00	85	00	5A	00

Bank0 Bank1

Figure 24

After opening RAM window, Bank will show the volume of the selected IC. Every Bank has 256 byte.

Bank0 starts from 0x00 to 0xFF. Bank1 starts from 0x100 to 0x1FF...etc.

If the address does not exist, it will display "-".

If users intend to switch Bank display, use cursor to point to the desired Bank zone, and then click the left key of the mouse to confirm.

If Hint is set, the address will display numbers and will be underlined.

**Notice: The Address 0x00 ~ 0x0E of Bank0 is indirect addressing register, it cannot be revised directly, the displayed value is not referable. If revise is required, please refer to Chapter 3.3.**

**Revise indirect addressing Data or Address.**

- **Function Display**

Click the mouse selection key (right key)

<u>S</u> et Mark	
S <u>e</u> t Mark(new color)	
<u>R</u> eset Mark	
R <u>e</u> set All Mark	
S <u>e</u> t <u>H</u> int	
R <u>e</u> set <u>H</u> int	
R <u>e</u> set <u>A</u> ll Hint	
<u>L</u> oad RAM Data	
S <u>a</u> ve RAM Data	
S <u>a</u> ve T <u>o</u> excel	
R <u>A</u> M <u>B</u> A <u>N</u> K0	
R <u>A</u> M <u>B</u> A <u>N</u> K1	

Figure 25

- Set Mark
- Set Mark(new color)
- Reset Mark
- Reset All Mark
- Set Hint
- Reset Hint
- Reset All Hint
- Load RAM Data
- Save RAM Data
- Save To excel
- RAMBANK0
- ...

- **Hint**

Use DS defined SRAM; Hint will be automatically generated in corresponding window address.

When cursor point to the address, it will show the defined string.

Ex: Program definition SRAM

MEMAR	080h	
MD1	DS	1
MD2	DS	1
MD3	DS	1
MDL1	DS	1
MDL2	DS	1
MDL3	DS	1
MD4	DS	5
S_REG	DS	1
r_Len	DS	1
SQRTmp	DS	4
Temp	DS	16

After assembling, it will enter into debug status, displaying memory window.

When cursor points to 80h address, <80>:MD1 will be shown.

When cursor points to 86h address, <86>:MD4[0] will show up.

When cursor points to 87h address, <87>:MD4[1] will show up.

Data Memory																
-	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
000	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	00
010	5A	00	85	-	-	-	00	00	00	-	00	00	-	03	2E	7F
020	7B	00	18	00	00	-	00	00	-	A5	01	00	10	00	-	-
030	00	01	00	00	00	00	00	00	-	00	00	00	00	00	00	00
040	00	40	00	00	FF	00	00	DF	00	00	FF	FF	FF	FF	-	30
050	-	FF	00	00	00	7A	63	7A	3E	7B	10	00	00	00	03	-
060	00	FF	-	-	-	-	-	-	-	-	-	-	-	00	00	00
070	00	00	00	-	1C	00	-	00	00	00	-	-	-	-	-	-
080	A5	A5	A5	A5	00	10	09	02	03	04	03	00	7B	00	00	00
090	05	00	00	00	00	29	43	03	00	00	00	00	00	00	00	00
0A0	00	00	00	00	00	00	01	00	34	00	00	00	00	07	EF	DE
0B0	79	DE	00	00	00	00	A0	FB	00	00	00	00	00	00	00	00
0C0	00	00	00	00	01	00	00	00	00	00	00	00	5E	00	00	00
0D0	00	00	10	FD	D8	79	DE	D8	79	DE	BB	79	DE	0A	7A	DE
0E0	EF	79	DE	A8	79	DE	0C	7A	DE	D4	79	DE	00	04	00	00
0F0	08	00	E7	79	00	00	FF	00	F7	00	00	00	85	00	5A	00
<div>Bank0</div> <div>Bank1</div>																

Figure 23

- There are two ways to revise SRAM value
  1. Point the cursor to the selected revised lines, click mouse's left key and Key IN directly.
  2. Point the cursor to the selected revised lines, double click the mouse's left key, a window will pop up as Figure 27 shown. Users can key in on keyboard or press the button by mouse.



Figure 24

### 3.3 Register Window

The screenshot shows the '11P13 Special Register' window. Annotations include:

- WREG**: Points to the 'WREG' field in the 'Program Counter' section.
- Program Counter**: Points to the 'Program Counter: 0' field.
- Cycle Times**: Points to the 'Cycle: 0000000E' field.
- Indirect addressing 0 Data**: Points to the 'IND0: M[05A] = 10' field.
- Indirect addressing 0 Address**: Points to the 'IND1: M[085] = 10' field.
- Indirect addressing 1 Address**: Points to the 'IND1: M[085] = 10' field.
- Indirect addressing 1 Data**: Points to the 'IND1: M[085] = 10' field.
- Single Byte Register**: Points to the 'PWMR' register in the 'Byte' table.
- one Word composed Register**: Points to the 'FSR0' register in the 'Word' table.
- Display PAGE 1 Register**: Points to the 'PAGE1' tab.
- Display PAGE 2 Register**: Points to the 'PAGE2' tab.
- Display PAGE 3 Register**: Points to the 'PAGE3' tab.
- Register byte**: Points to the 'PSTAUS' register in the 'PAGE1' table.
- Register bit**: Points to the 'MCKCN1' register in the 'PAGE1' table.

**Byte Table:**

INDF0	POINCO	PODECO	PRINCO	PLUSW0	INDF1	POINC1	PODEC1	PRINC1
=	=	=	=	=	=	=	=	=
PLUSW1	WREG	BSR	ADCRH	ADCRM	ADCRL	TMAR	PRC	TMCR
=	A5	01	00	00	00	00	DF	00
PWMR	SSPBUF	LCD0	LCD1	LCD2	LCD3	LCD4	LCD5	LCD6
FF	FF	00	7A	63	7A	3E	7B	10
LCD7	LCD8	LCD9						
00	00	00						

**Word Table:**

FSR0	FSR1	TOS	PCLAT	TBLPTR	TBLD	PROD	TMBR	CCP0R
005A	0085	0000	0000	032E	7F7B	0018	FF00	FFFF
CCP1R								
FFFF								

**PAGE1 Table:**

STKPTR	STKFL	SPKUN	STKOV	-	STKPRT3	STKPRT2	STKPRT1	STKPRT0
INTE1	GIE	ADCIE	TMCIE	TMBIE	TMAIE	WDTIE	E1IE	EOIE
INTE2	-	-	-	-	-	SSPIE	CCP1IE	CCP0IE
INTF1	-	ADCIF	TMCIF	TMBIF	TMAIF	WDITF	E1IF	EOIF
INTF2	-	-	-	-	-	SSPIF	CCP1IF	CCP0IF
STATUS	-	-	-	C	DC	N	OV	Z
PSTAUS	PD	TO	IDL	BOR	-	SKERR	-	-
LVDON	-	LVDIF	LVDOP	LVDON	VLDX3	VLDX2	VLDX1	VLDX0
PWRCON	ENVDDA	VDDAX1	VDDAX0	ENACM	-	-	-	-
MCKCN1	ADCS2	ADCS1	ADCS0	ADCCK	XTHSP	XTSP	ENXT	ENRC2M
MCKCN2	-	-	LSCK	HSS1	HSS0	CPUCK1	CPUCK0	
MCKCN3	LCD82	LCD81	LCD80	-	PERCK	BZS1	BZS0	

Figure 25

- **Revise Indirect Addressing Data or Address**  
After setup as Figure 29 illustrated, Address can be revised through typing on the keyboard or by pressing the value by mouse.

The diagram illustrates the process to revise indirect addressing data or address. It shows the '11P13 Special Register' window with the 'IND0: M[05A] = 10' field selected. A red arrow points to the 'Modify Value' button. Another red arrow points to the 'Modify FSR0' button. A third red arrow points to the 'click the left key of the mouse' instruction. The final step shows a numeric keypad dialog box with the title 'FSR0=05A' and a 'Memory checked OK' message.

Figure 29

After setup as Figure 30 illustrated, Data can be revised through typing on the keyboard or by pressing the value by mouse.

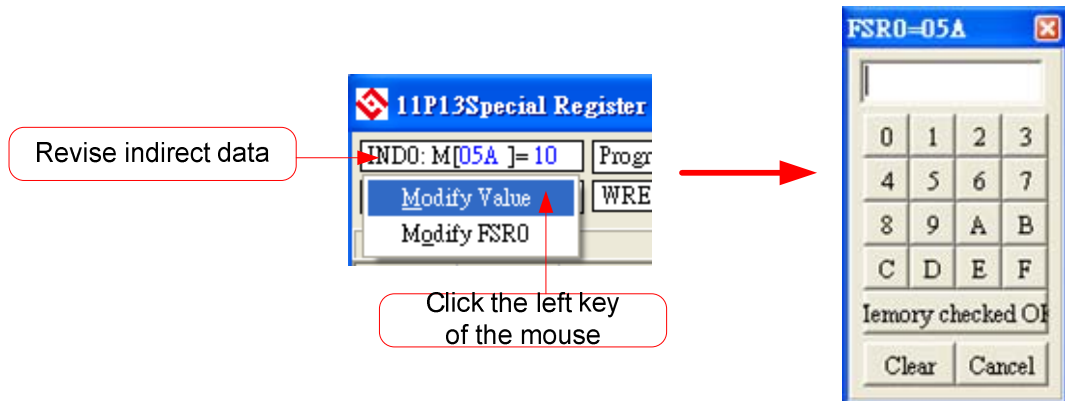


Figure 30

- Revise WREG Data

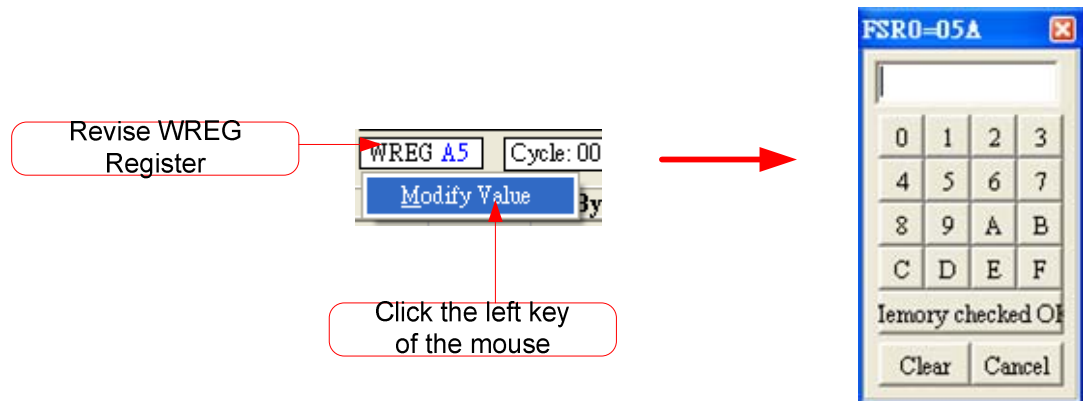


Figure 26

- Revise single 1 byte or Word Register Data

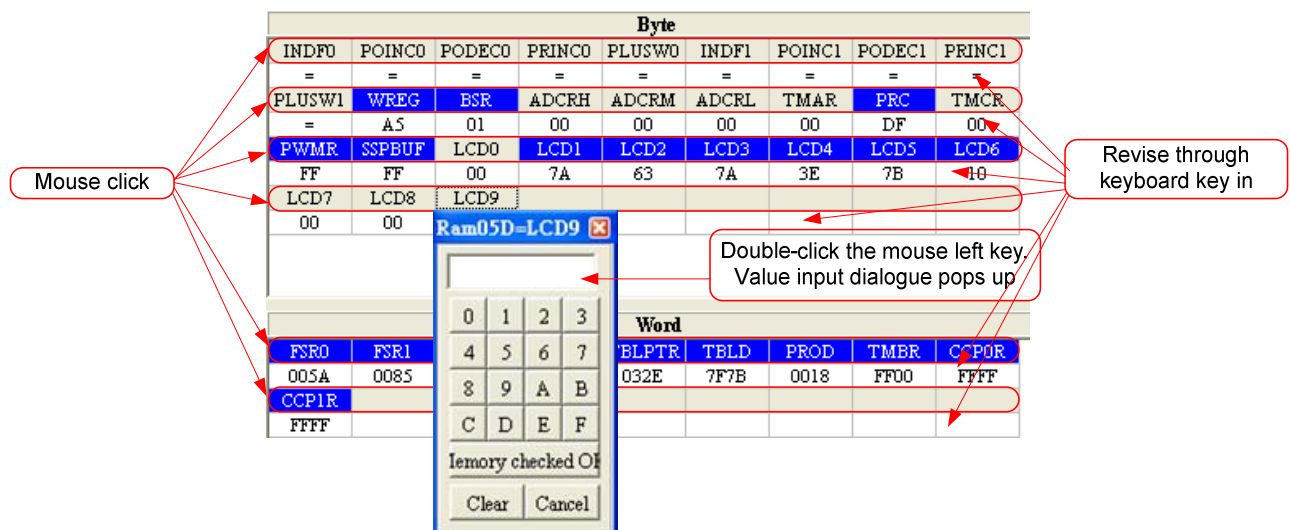


Figure 27



- Revise Register single 1 byte or single 1 bit

After Bit is configured as 1, its value will be highlighted in blue font.

After Bit is configured as 0, its value will be shown in black font.

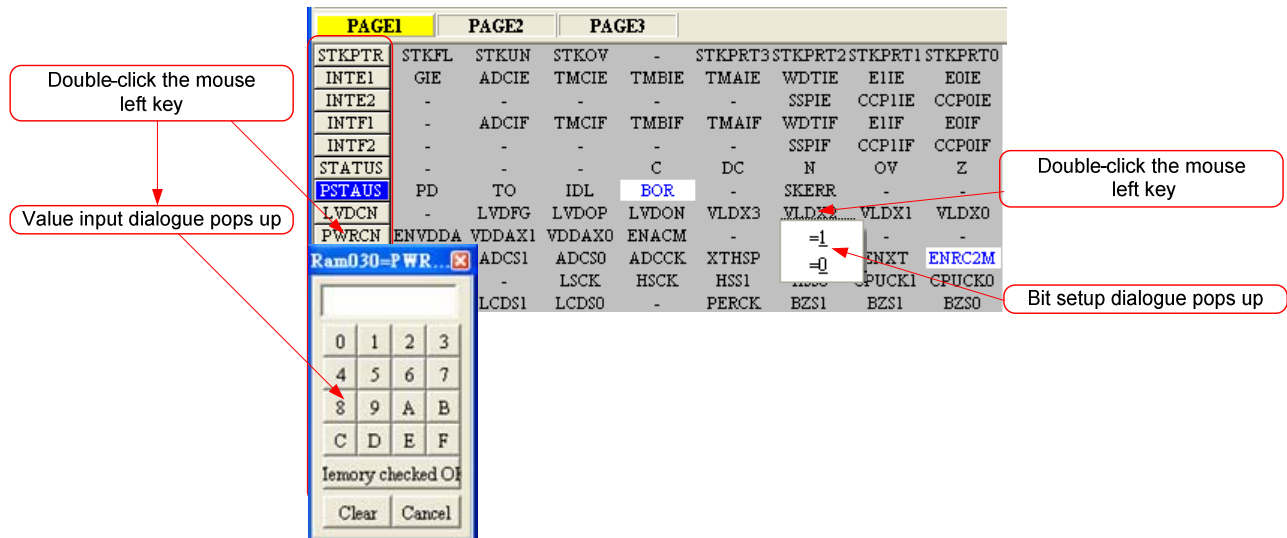


Figure 28

### 3.4 Watch Window

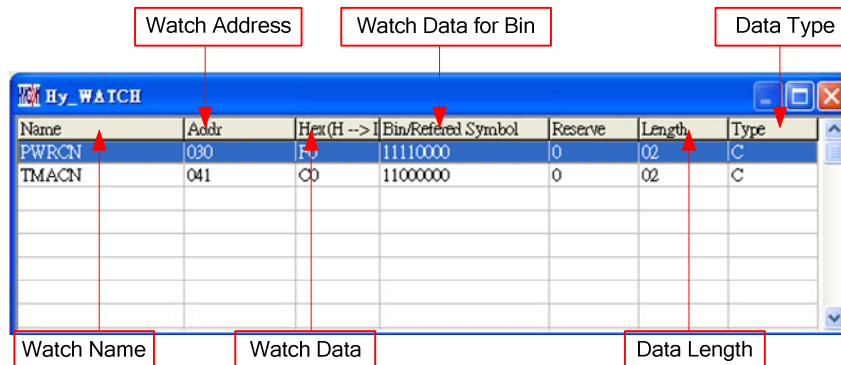


Figure 29

- Watch Name → Monitored Data name, program uses EQU or DS defined name.
- Watch Address → Monitored Data Address.
- Watch Data → Reveal data. It is selectable to be arranged from right to left or from left to right. It can also display decimal or hexadecimal system.

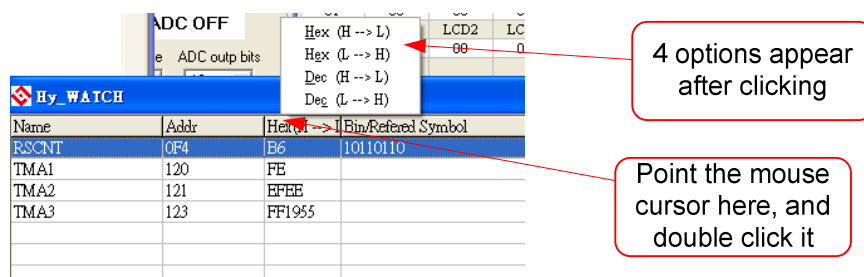


Figure 30

Hex (H → L): Hexadecimal display, address H/L shows from low to high

Hex (L → H): Hexadecimal display, address L/H shows from high to low

Dec (H → L): Decimal display, address H/L shows from low to high

Dec (L → H): Decimal display, address L/H shows from high to low

- Watch Data for Bin → Data display in binary system, only for those EQU defined Address.
- Data Length → Data length, showing DS definition length; if EQU definition is applied, this value will show "2".
- Data Type → Data type; D = DS definition; C = EQU definition.



- 
- The screenshot shows the Hy\_ADDWCH dialog box with the 'Watch List' tab selected. The left sidebar contains a list of actions, with 'Add/Delete Watches' highlighted. A red arrow points from this button to the 'Watch List' tab. The 'Watch List' contains the address PWRON. The 'Other Constant' list is empty. The 'Del' button is visible at the bottom right.

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### 3.5 Stack Window

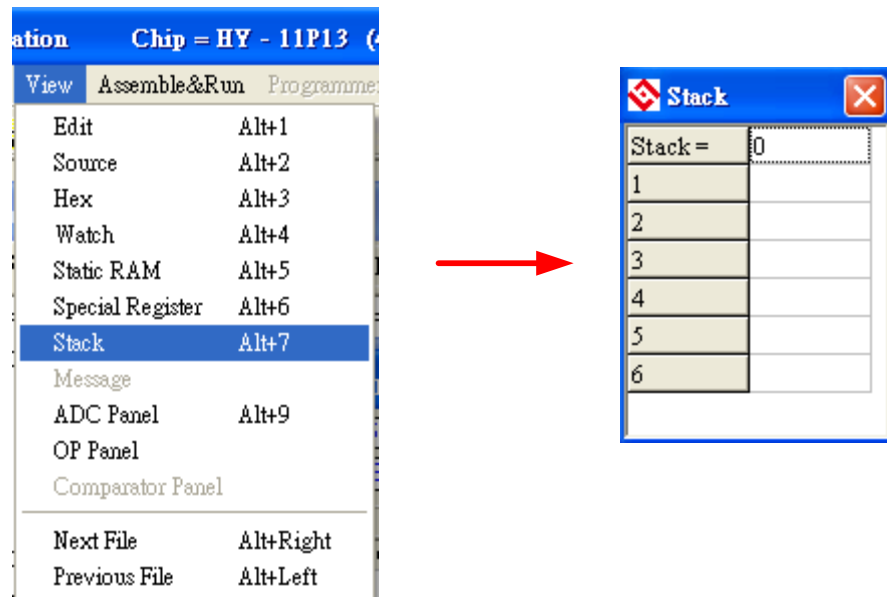


Figure 32

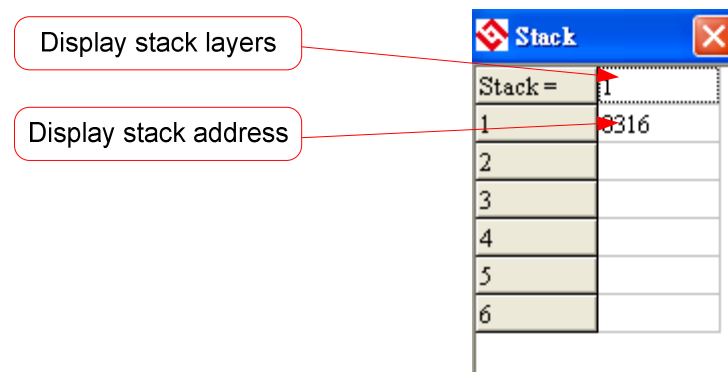


Figure 33

### 3.6 ADC Window

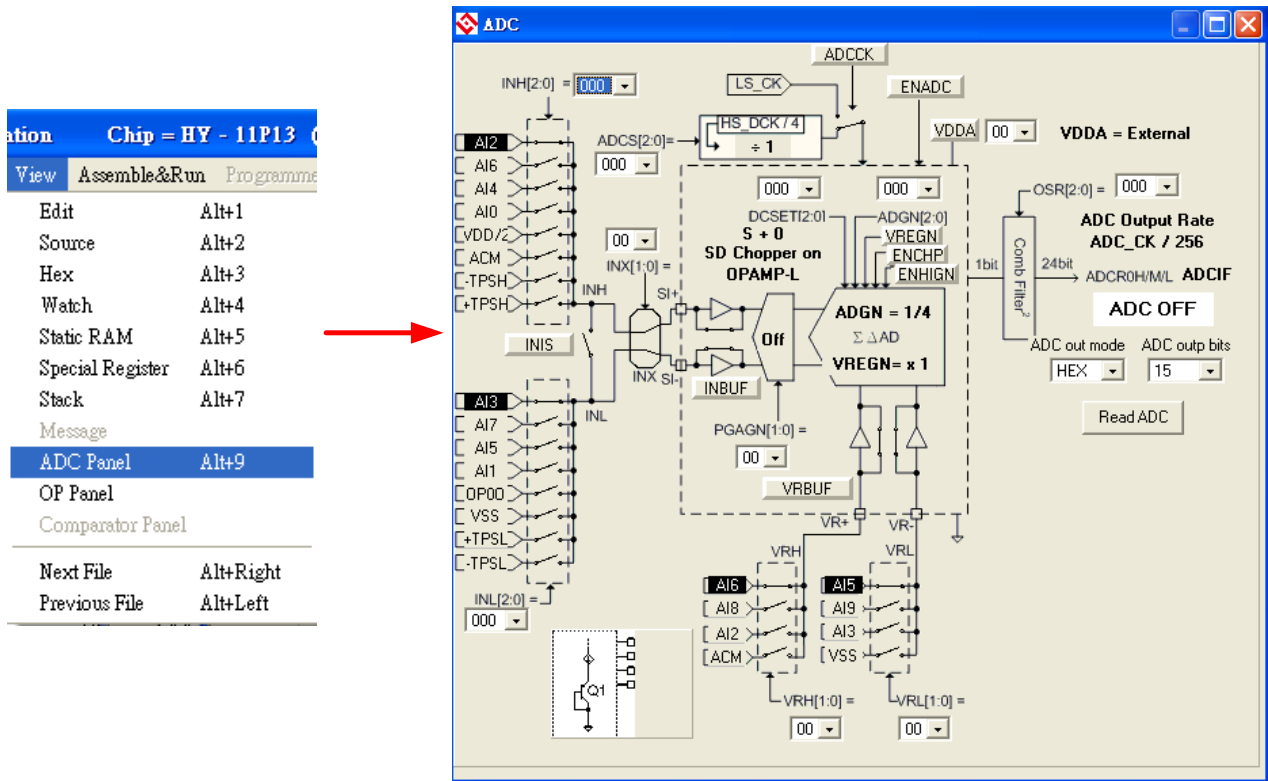


Figure 34

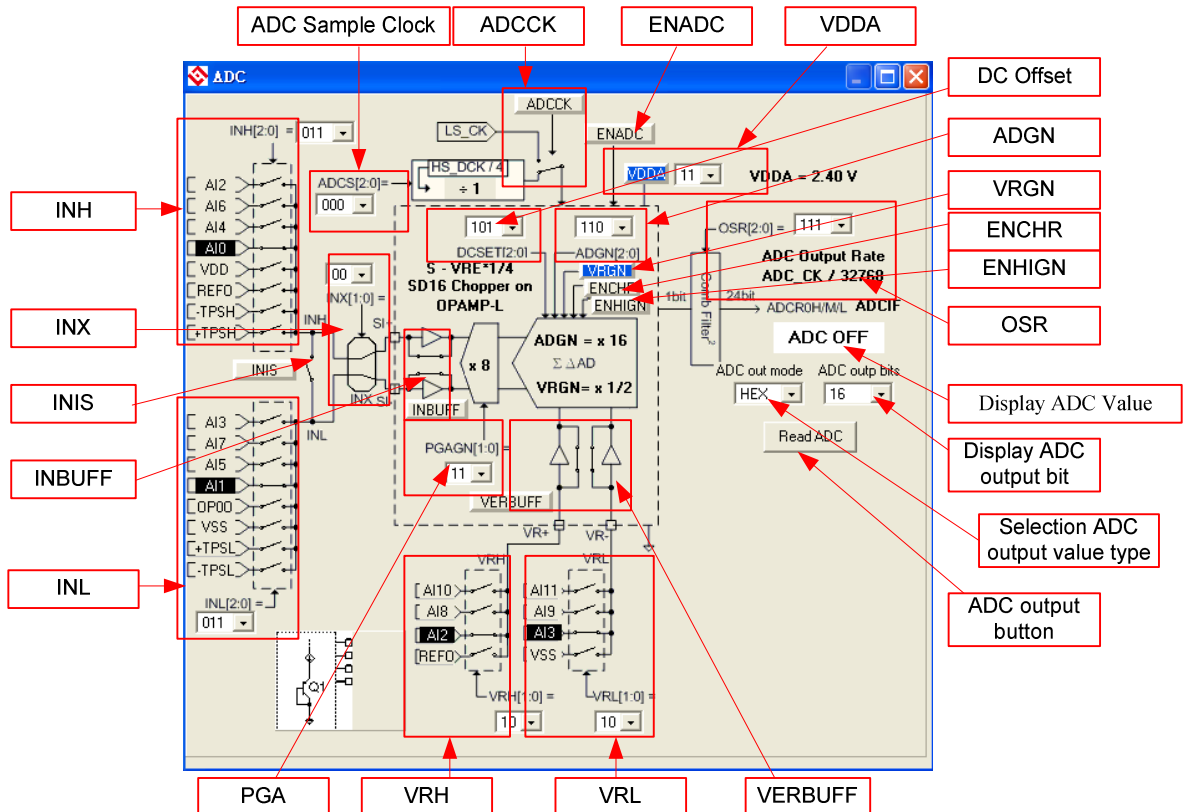


Figure 35

- INH Network
  - (1) Click the network by mouse, INH can select the specified network.
  - (2) Click the network switch by mouse, INH can select the specified network.
  - (3) Click the mouse, a menu as Figure 41 will appear and users can select the switch network.

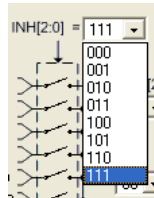


Figure 36

- INL Network
  - (1) Click the network by mouse, INL can select the specified network.
  - (2) Click the network switch by mouse, INL can select the specified network.
  - (3) Click the mouse, a menu as Figure 42 will appear and users can select the switch network.

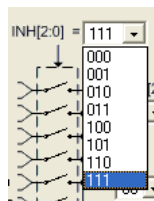


Figure 37

- INIS Switch
  - (1) Click the specified network by mouse, INIS switch will turn ON/OFF.
  - (2) Click the specified network switch by mouse, INIS switch will turn ON/OFF.
- INX Network Switch
  - (1) Click the specified network by mouse, 4 switches are shown as Figure 43.

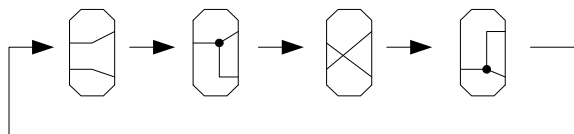


Figure 38

- (2) Click the mouse, a menu as Figure 44 will appear and users can select the switch network.

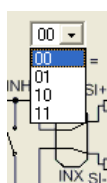


Figure 39

- INBUFF Switch
  - (1) Click the specified network by mouse, INBUFF switch will turn ON/OFF.
  - (2) Click the specified network switch by mouse, INBUFF switch will turn ON/OFF.
- INL Network
  - (1) Click the network by mouse, INL can select the specified network.
  - (2) Click the network switch by mouse, INL can select the specified network.
  - (3) Click the mouse, a menu as Figure 45 will appear, and users can select the specified switch network.

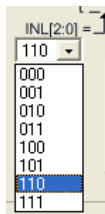


Figure 40

- ADC Sample Clock

Click the mouse, a menu as Figure 46 will show up, users can select the specified switch network.

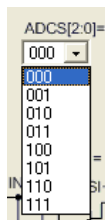


Figure 41

- ADCCK Selection
  - (1) Click the specified network by mouse, ADCCK will switch selection.
  - (2) Click the specified switch by mouse, ADCCK switch will switch selection.
- ENADC

Click the specified network by mouse, ENADC will turn ON/OFF. When ENADC = ON, display ADC zone will output value.
- VDDA Net work

ENVDDA enable control

  - (1) Select ENVDDA switch ON/OFF.
  - (2) Select VDDA voltage.

Click the mouse, a menu as Figure 47 will show up. Users can select to specified mode.

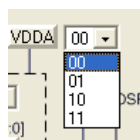


Figure 42

(3) Display VDDA Voltage

When ENVDDA = 0, the zone will show VDDA = External

When ENVDDA = 1, the zone will show VDDX selected voltage.

- PGA Network

Click the mouse, a menu as Figure 48 will appear. Users can choose the specified network.

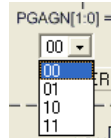


Figure 43

- VRH Network

(1) Click the network by mouse, VRH can select the specified network.

(2) Click the network switch by mouse, VRH can select the specified network switch. VRH can choose the specified network.

(3) Click the network by mouse, a menu as Figure 49 will appear. Users can select the specified switch network.

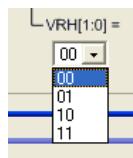


Figure 44

- VRL Network

(1) Click the network by mouse, VRL can select the specified network.

(2) Click the network switch by mouse, VRL can select the specified network.

(3) Click the mouse, a menu as Figure 45 Figure 50 will appear. Users can select the specified switch network.

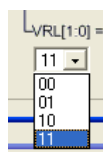


Figure 45

- VERBUFF

(1) Click the network by mouse, VERBUFF switch will turn ON/OFF.

(2) Click the network switch by mouse, VERBUFF switch will turn ON/OFF.

- DC Offset Network

Click the mouse, a menu as Figure 51 will show up. Users can select the specified network.



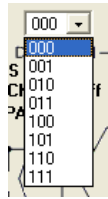


Figure 46

- ADGN Network

Click the mouse, a menu as Figure 47 Figure 52 will appear. Users can select the specified network.

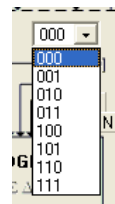


Figure 47

- VRGN

Click the network by mouse, VRGN can select the specified network.

- OSR Network

Click the mouse, a menu as Figure 53 will show up. Users can select the specified network.

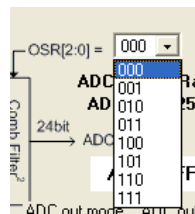


Figure 48

- ADC Display Zone

- (1) Select ADC value output type → Hex or Dec output is selectable.
- (2) Select ADC value output Bit → selectable 8 ~ 24 Bit output.
- (3) Display output button → Click this button can immediately display ADC value.

### 3.7 OP Window

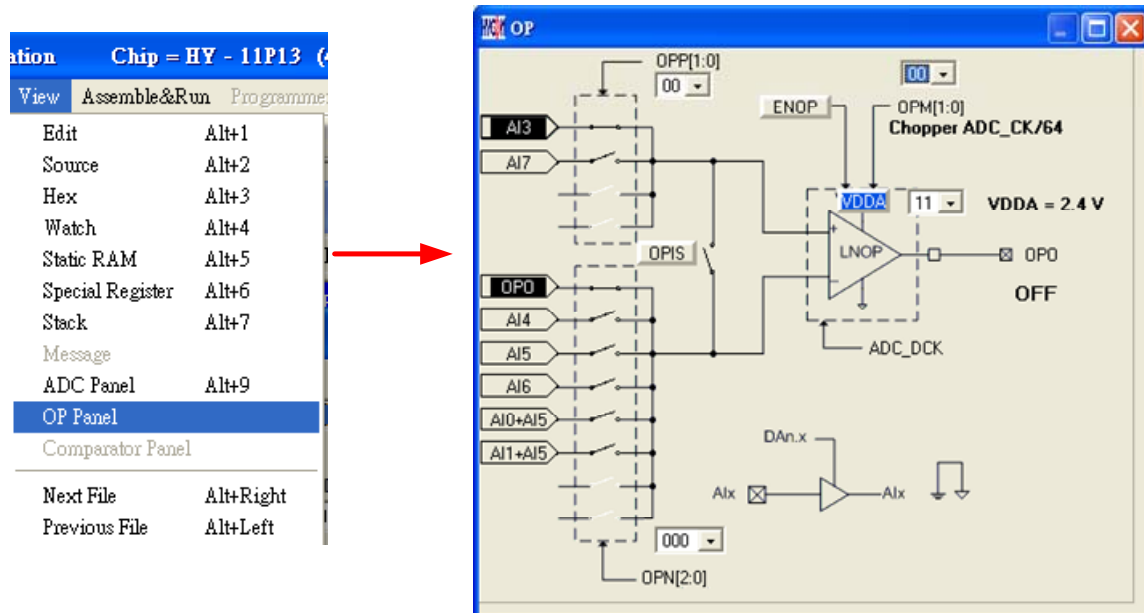


Figure 49

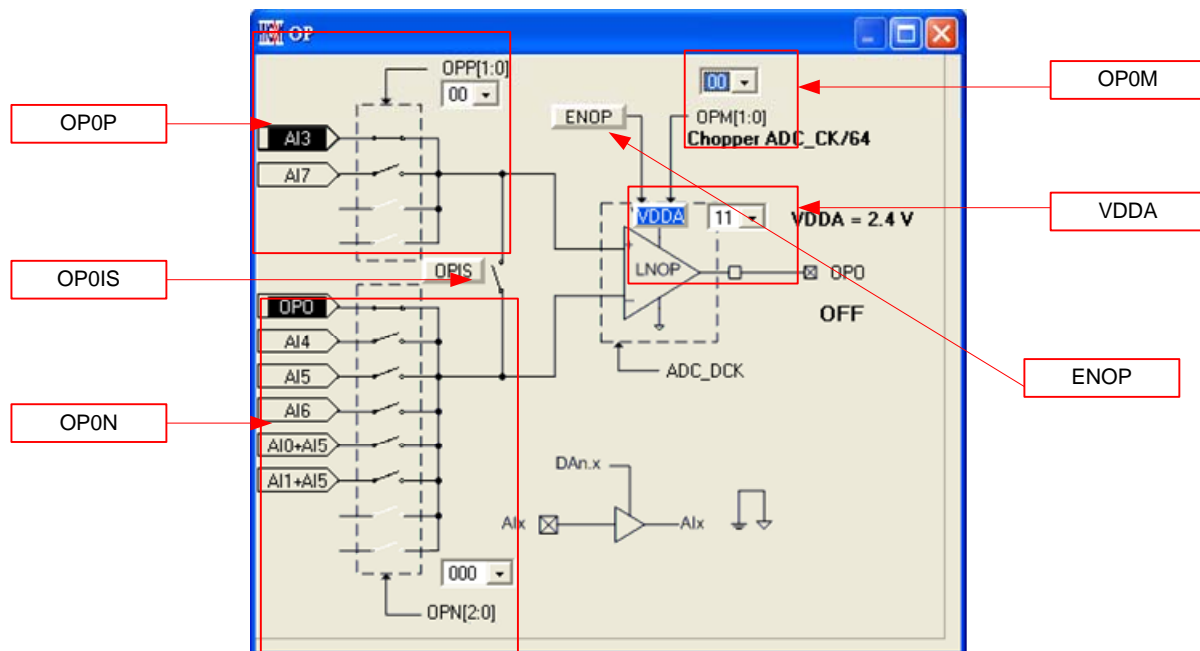


Figure 50

- OP0P Network
  - (1) Click the network by mouse, OP0P can select the specified network.
  - (2) Click the network switch by mouse, OP0P can select the specified network.
  - (3) Click the mouse, a menu as Figure 56 will appear. Users can select the specified switch network.

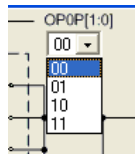


Figure 51

- OP0N Network
  - (1) Click the network by mouse, OP0N can select the specified network.
  - (2) Click the network switch by mouse, OP0N can select the specified network.
  - (3) Click the mouse, a menu as Figure 57 will appear. Users can select the specified switch network.

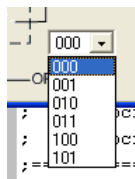


Figure 52

- ENOP

Click the network by mouse, ENOP will turn ON/OFF.

ENOP status display

When ENOP = 1, it will display ON

When ENOP = 0, it will display OFF
- VDDA Network (Please refer to VDDA network of ADC window)
- OP0M Network

Click the mouse, a menu as Figure 58 will show up. Users can select the specified switch network.

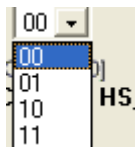


Figure 53

### 3.8 Comparator Window

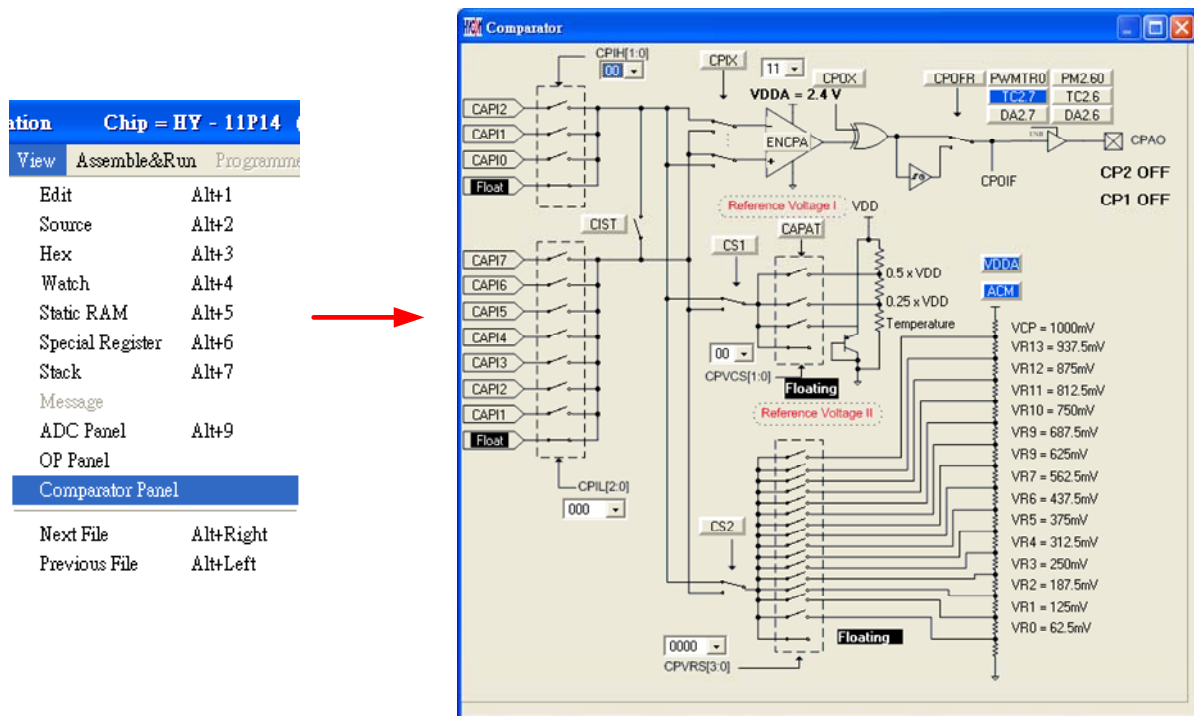


Figure 54

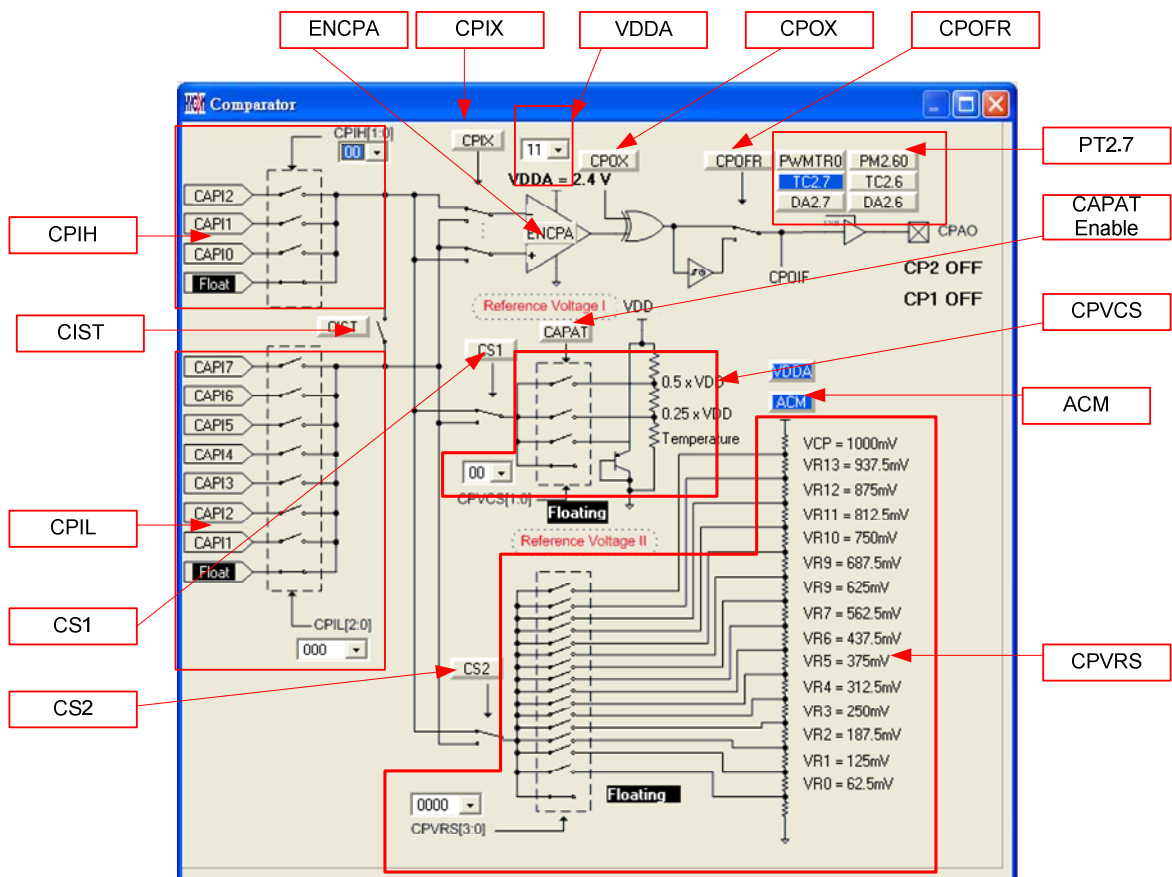


Figure 55

- CPIH Network

- (1) Click the network by mouse, CPIH can select to the specified network.
- (2) Click the network switch by mouse, CPIH can select to the specified network.
- (3) Click the mouse, a menu as Figure 61 will show up. Users can select the specified switch network.

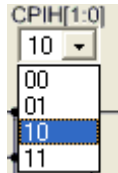


Figure 56

- CPIL Network

- (1) Click the network by mouse, CPIL is select to the specified network.
- (2) Click the network switch by mouse, CPIL is select to the specified network.
- (3) Click the mouse, a menu as Figure 62 will appear. Users can select to the specified switch network.

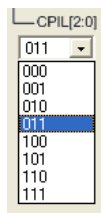


Figure 57

- CPVCS Network

- (1) Click the network by mouse, CPVCS can select to the specified network.
- (2) Click the network switch by mouse, CPVCS can select the specified network.
- (3) Click the mouse, a menu as Figure 63 will show up. Users can select the specified switch network.

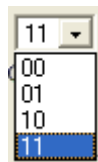


Figure 58

- CPVRS Network

- (1) Click the network by mouse, CPVRS can select to the specified network.
- (2) Click the network switch by mouse, CPVRS can select the specified network.
- (3) Click the mouse, a menu as Figure 64 will show up. Users can select the switch network.

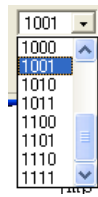


Figure 59

- VDDA Network (Please refer to the VDDA network of ADC window)
- CPIX Switch  
Click the network by mouse, CPIX will switch.
- CIST  
Click the network by mouse, CIST will turn ON/OFF.  
CIST status display:  
When CIST = 1, display ON  
When CIST = 0, display OFF
- CS1 Switch  
Click the network by mouse, CS1 will switch up and down.
- CS2 Switch  
Click the network by mouse, CS2 will switch up and down.
- ENCPA  
Click the network by mouse, ECPA will be activated.  
ENCPA status display:  
When ENCPA = 1, comparator is enabled.  
When ENCPA = 0, comparator is disabled.
- CPOX  
Click the network by mouse, CPOX will turn ON/OFF.
- CPOFR  
Click the network by mouse, CPOFR will switch up and down.
- CAPAT enable  
Click the network by mouse, CAPAT module will be activated or inactivated.  
CAPAT status display:  
When CAPAT = 1, CAPAT module is activated.  
When CAPAT = 0, CAPAT is inactivated.
- REFO Switch  
Click the network by mouse, REFO will turn ON/OFF.  
REFO status display:  
When REFO = 1, REFO is activated.  
When REFO = 0, REFO is inactivated.
- PT2.7  
CAPO will output only when PT2M.7 = 1, TC2.7 = 1 and DA2.7 = 1,.

### 3.9 Register & SRAM Revise Record

If the register or SRAM has been revised manually after access to emulation window (hardware emulation or software emulation), the data will be recorded (despite the RAM, Register, ADC, OP and CMP is revised through any kind of window). The data will be revealed after pressing the button "RAM revise record". At this time, windows will suspend until it is closed to execute other commands.

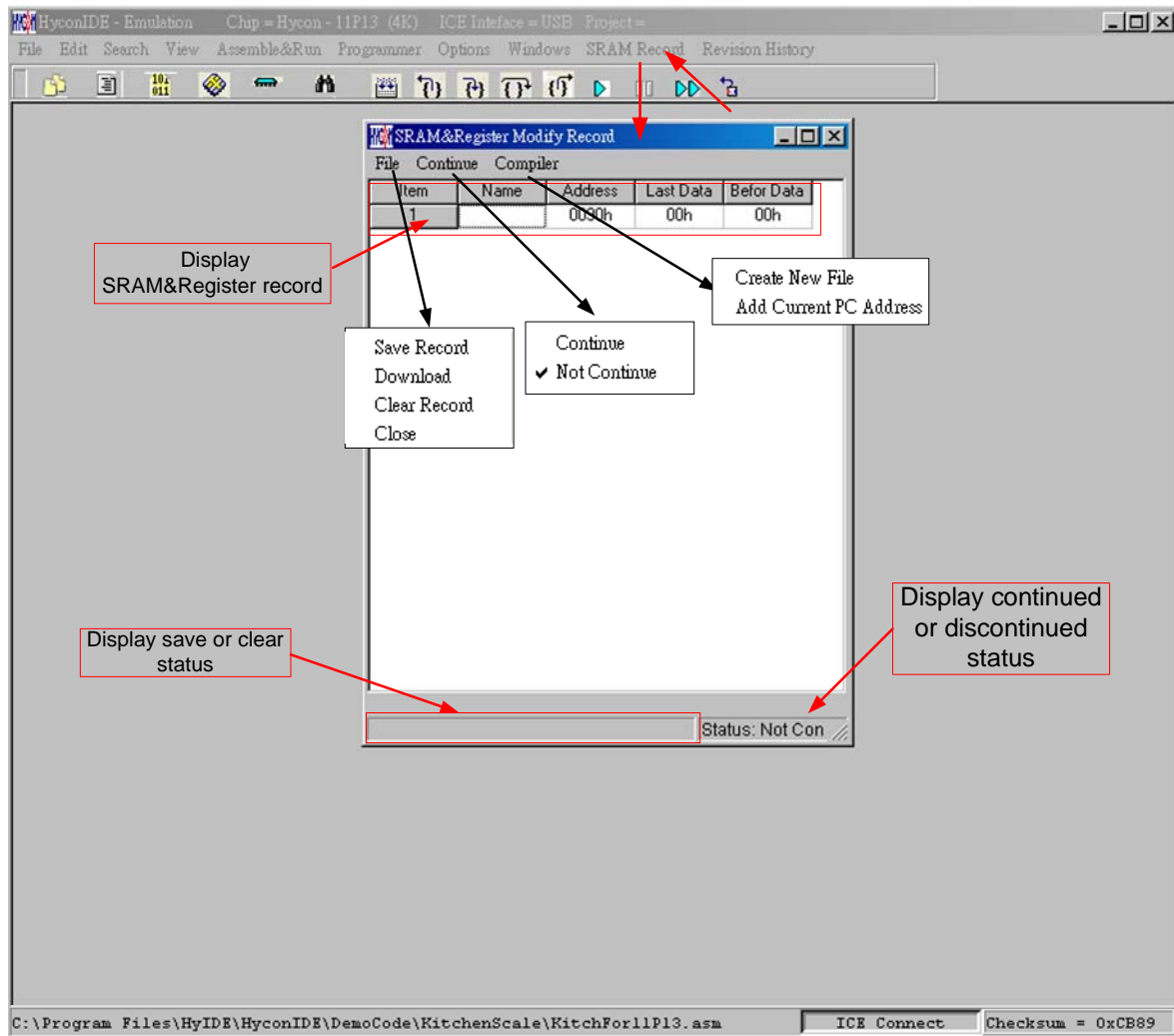


Figure 60



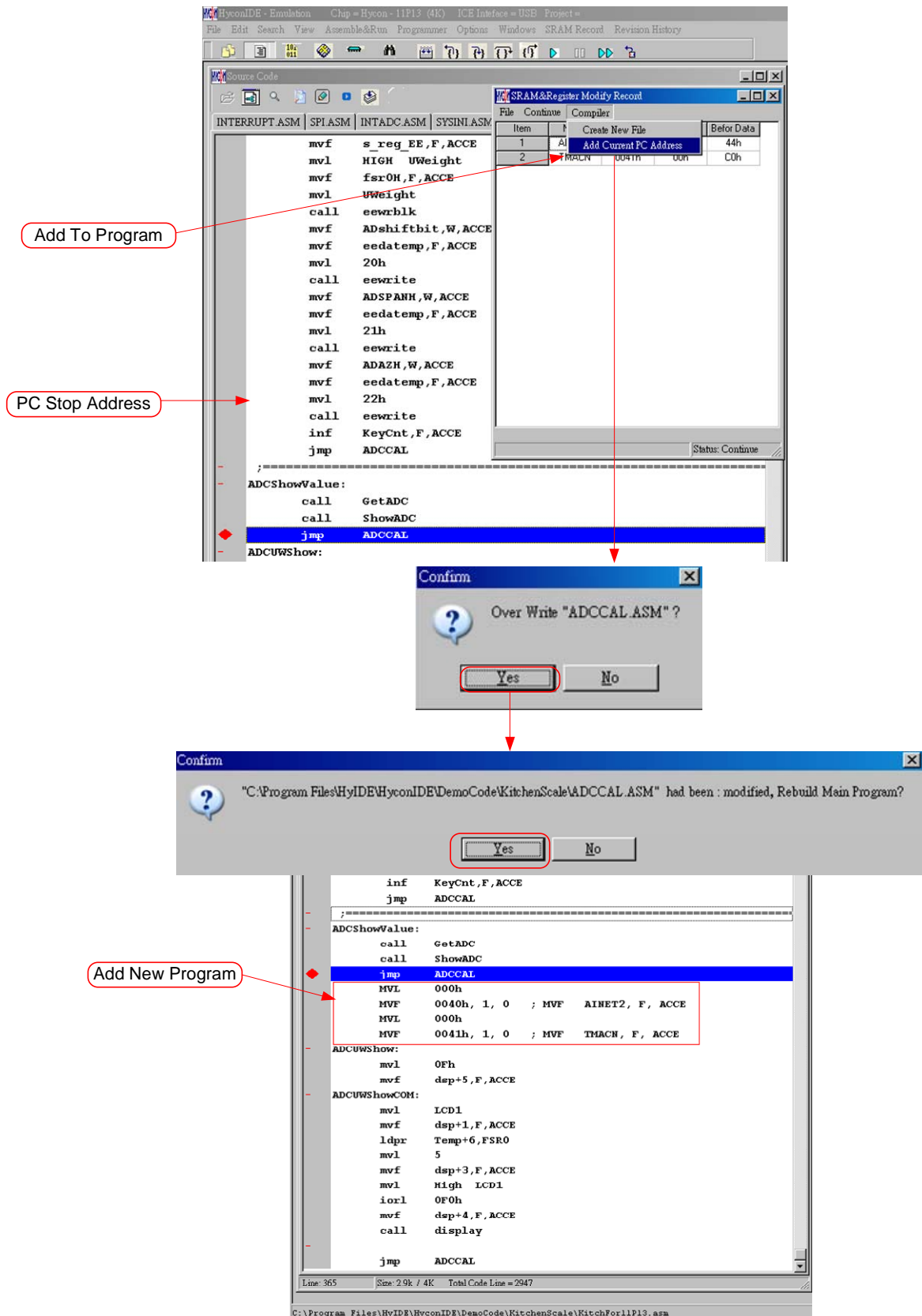


Figure 61

### 3.10 Hint Function of Source Code Window

If users intend to know Register or SRAM value and Address in source code window, point the cursor to register or SRAM, the name, address and data can be revealed.

This function is only applicable to the instructions below:

CLRF, ADDF, INF, INSZ, DCF, DCSZ, SUBF, COMF, ADDC, ANDF, IORF, XORF, SUBC, RRF, SETF, MULF, RLF, JZ, RRFC, RLFC, SWPF, DAW, INSUZ, DCSUZ, ARLC, ARRC, CPSG, CPSL, CPSE, TFSZ, BTFG BSF, BCF, BTSS, BTSZ, MVFF(not Macro).

- Only the first followed argument is effective as Figure 67 described.
- When command is BCF, BSF, BTSS, BTSZ and BTGF, Byte value will be revealed if the cursor points to the first argument. If the cursor points to the second argument, it will display the specified Bit value (1 or 0) as Figure 68 illustrated.
- When command is MVFF (not Macro), first argument value will appear if the cursor points to the first argument. If the cursor points to the second argument, argument value will show up as shown in Figure 69.
- If the argument is INDF0, POINC0, PODEC0, PRINC0, INDF1, POINC1, PODEC1 and PRINC1, the Data will be FSR0 or the address Data of FSR1 as Figure 70 described.
- If the argument is PLUSW0 or PLUSW1, the Data is FSR0+WREG or the address Data of FSR1+WREG as illustrated in Figure 71.

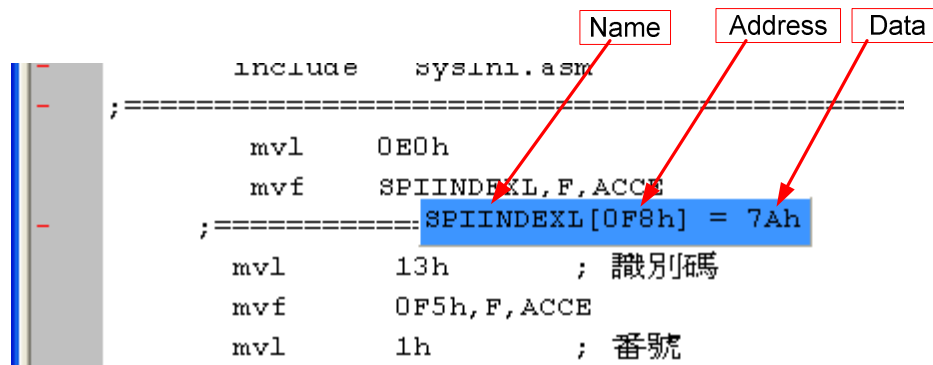


Figure 62

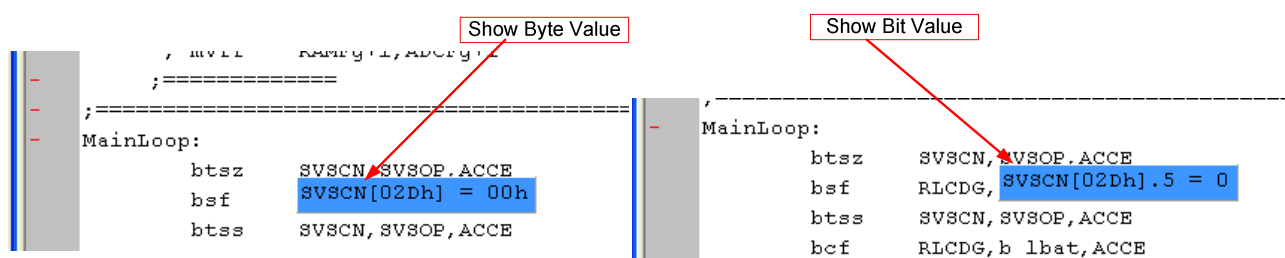


Figure 63

```

    bsf     INDF0,4,ACCE
    ; AS 10,80h
    mvff    RAMFG+1,ADCFg+1
    ;===== RAMFG+1[0A5h] = FFh
    ;=====
MainLoop:
    btsz    SVSCN,SVSOP,ACCE

```

```

    bsf     INDF0,4,ACCE
    ; AS 10,80h
    mvff    RAMFG+1,ADCFg+1
    ;===== ADCFG+1[0A9h] = 7Fh
    ;=====
MainLoop:
    btsz    SVSCN,SVSOP,ACCE

```

Figure 64

```

    mvff    INDF1,PLUSW0
    bsf     INDF0,4,ACCE
    ; AS 10,80h INDF0[120h] = FEh
    mvff    RAMFG+1,ADCFg+1
    ;=====
    ;=====
MainLoop:
    btsz    SVSCN,SVSOP,ACCE
    bsf     INDF0,4,ACCE

```

Figure 65

```

    mvl     4
    mvff    INDF1,PLUSW0
    bsf     INDF0,PLUSW0[145h] = A7h
    ; AS 10,80h
    mvff    RAMFG+1,ADCFg+1
    ;=====
    ;=====

```

Figure 66

## 4. Programming Windows

### 4.1 Interface Setup

Click “Options” , a window will appear. Click the interface setup, as shown in Figure 72.

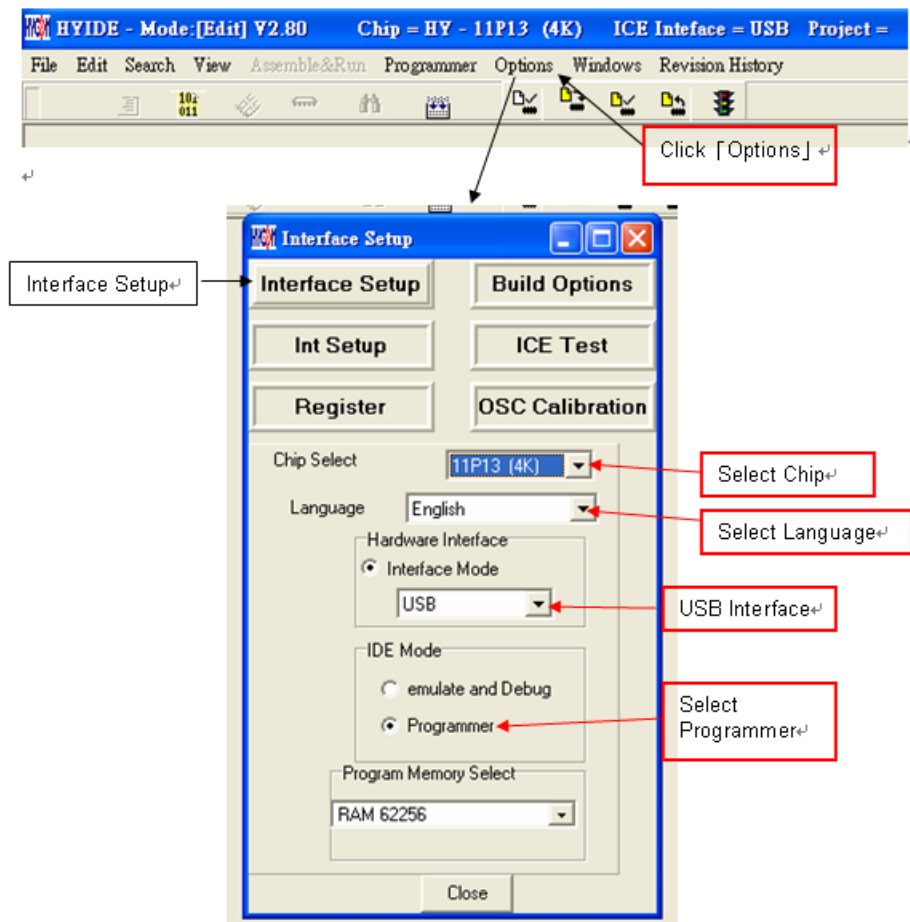


Figure 67

Chip Select → Choose the specific programming IC part no. If programmed IC differs from the selected IC, Blank Check, Program and Verify will fail.

Language → Choose operation interface language, like Chinese or English.

Hardware Interface → USB interface or Parallel Port interface is selectable.

IDE Mode → Programmer or emulate and Debug is selectable. Choose Programmer.

Programmer: programming HY11P series products.

Emulate and Debug: when users use it with simulator for developing.

When interface setup finished, click " Build Options" to select programming configuration. As described in Figure 73.

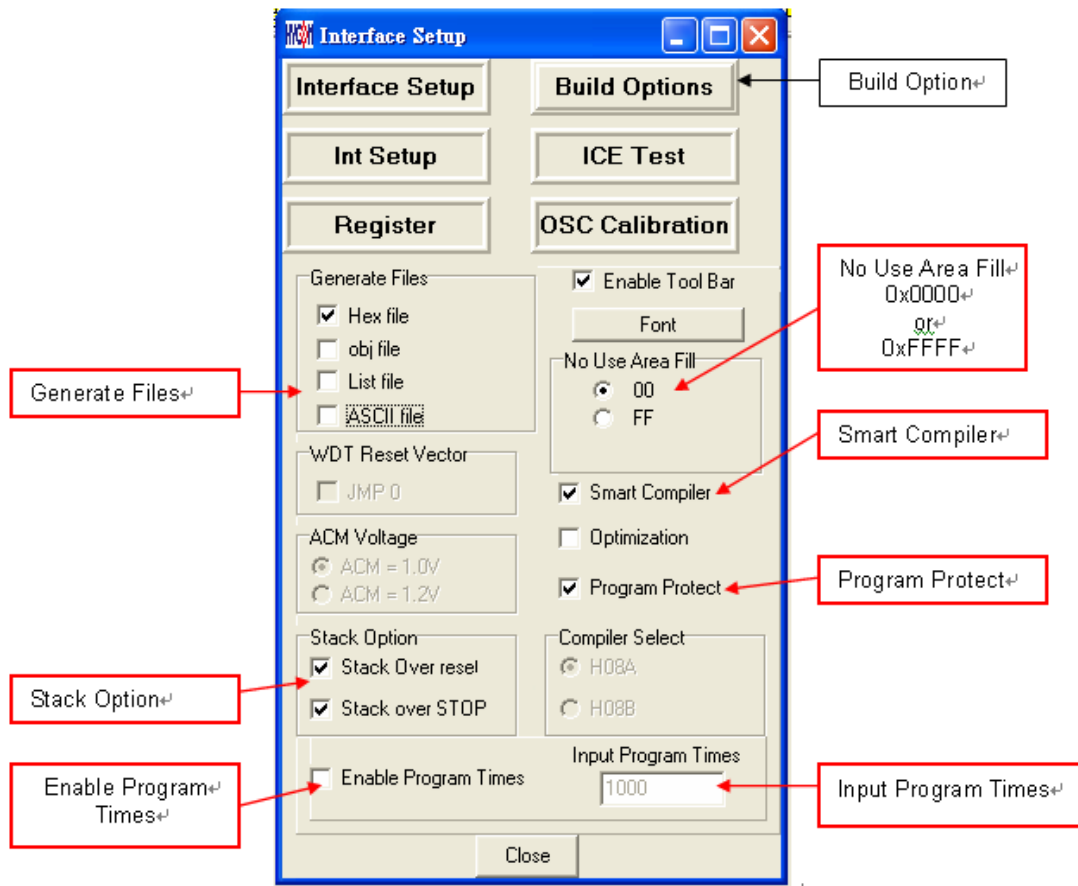


Figure 68

Generate Files → Choose generated file after assembly

Stack Option → Choose whether to reset when stack overflow or stack full after OTP program operation.

No Use Area Fill → Fill up 00 or FF in unused program space after assembly.

Smart Compiler → Choose whether to simplify assembly.

Enable Program Times → Choose whether to enable Download program times.

Input Program Times → Input Download program times (Maximum: 2147483646. Minimum: 1).

After assembly finished, click "ICE Test" to test ICE operation voltage as Figure 74 described (Connect Adapter 9V and connect USB Line to ICE. Make sure the ICE is connected, and then click "Option" at working bar, click button "CK ALL"). After that, the VPP and VCC voltage will be started testing as Figure 74.

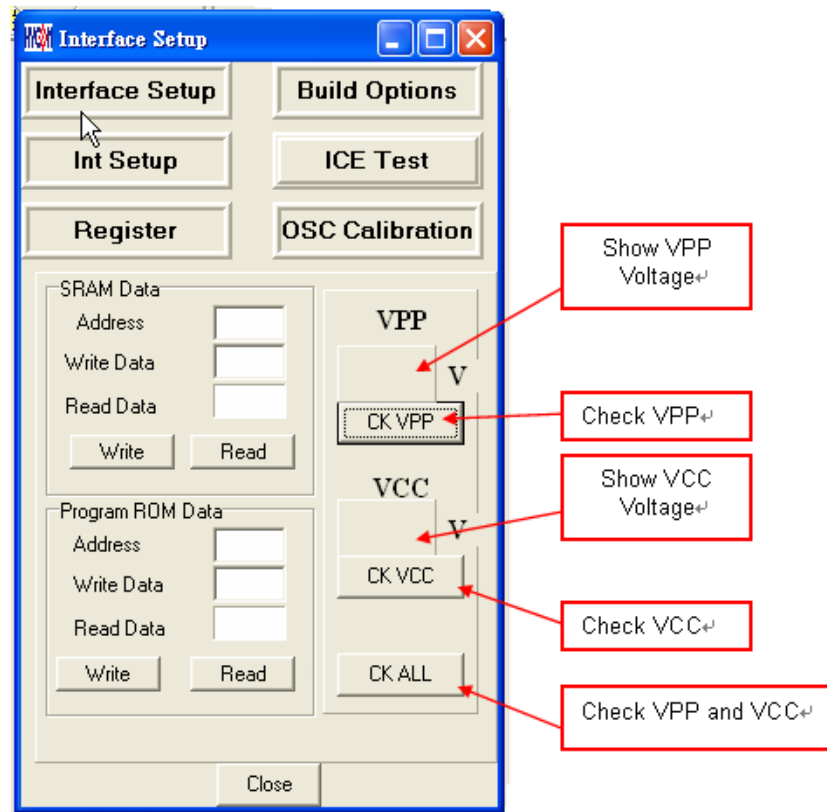


Figure 69

VPP voltage while programming:  $5.6 < VPP < 6.6$ .

VDD voltage while programming:  $2.7 < VDD < 3.6$ .

After ICE operation voltage test finished, click "OSC Calibration" doing HAO/LPO Calibration.

- **Note for attention before using the function of "OSC Calibration":**
  - Please note this function only can work on the programmer "HY10000-WK05" used the software, HYCON-IDE 3.0 above version.
  - If HAO/LPO Calibration programming started, the code, 0FEH/0FFH of RAM has its own meaning when IC is power-on.
  - The programming time will be 500msec. longer (upon LPO Software Calibration Started)
  - HAO/LPO Calibration is not doing actual frequency calibration; only provide the difference of frequency for calculation.
  - PC Online Programming only supports HAO Hardware Calibration, doesn't support Software Calibration.

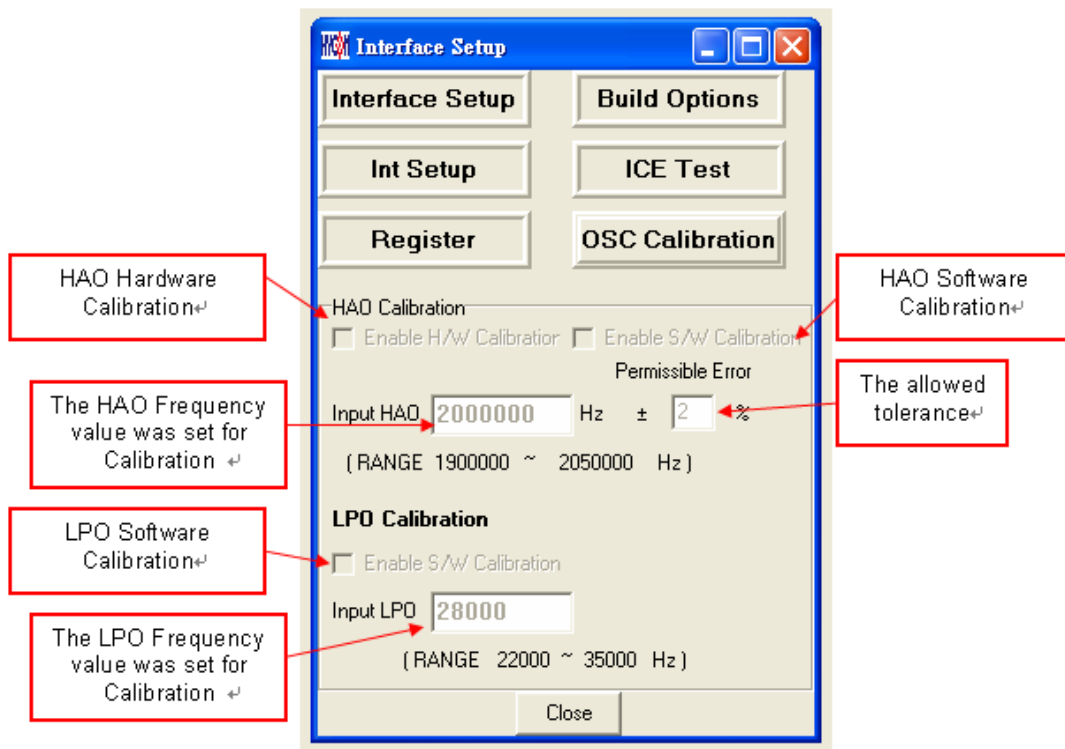


Figure 70

- **HAO Calibration:**  
 Enable H/W Calibration→Enable HAO Hardware Calibration and doing the system calibration. This function has to be confirmed if it works after the IC model No. has been designed.  
 Enable S/W Calibration→Enable HAO Software Calibration. The difference value is saved in code 0FEH of RAM.
- **LPO Calibration:**  
 Enable S/W Calibration→Enable LPO Software Calibration. The difference value is saved in code 0FFH of RAM.
- Input HAO→Input the set HAO frequency value for calibration.
- Input LPO→Input the set LPO frequency value for calibration.
- Permissible Error→Tolerance between calibrated frequency value and the set frequency value.

Please find the description of Software Calibration as below.

- **HAO Software Calibration :**

After Calibration, the difference value is saved in code 0FEH of RAM. This function is not doing actual frequency calibration; only writing in the difference of frequency when the IC power-on.

HAO Hardware Calibration, HAO Software Calibration can exist at the same time. Moreover, Hardware Calibration enforced first and then proceed Software Calibration to calculate the difference value.

The difference value of frequency defined as **4000HZ/LSB** .

The code 0FEH data format:

Bit7 : 0= +, 1= - ; Bit6~Bit0 means frequency difference value.

01H mean the frequency difference value is +4000HZ ; FFH mean the frequency difference value is -4000HZ.

Example:

The set value for HAO frequency calibration is 2000000HZ , and the actual value from IC is HAO=1920000HZ. The calculation is  $(1920000-2000000)/4000 = -80000/4000 = -20$ , therefore the code 0FEH will be **1110 1100b**

Example 1:

The set value for HAO frequency calibration is 2000000HZ , and the actual value from IC is HAO=2008000HZ. The calculation is  $(2008000-2000000)/4000 = 8000/4000 = 2$ , therefore the code 0FEH will be **0000 0010b**

- **LPO Software Calibration :**

After Calibration, the difference value is saved in code 0FFH of RAM. This function is not doing actual frequency calibration; only writing in the difference of frequency when the IC power-on.

The difference value of frequency defined as **64HZ/LSB**.

The code 0FFH data format:

Bit7 : 0= +, 1= - ; Bit6~Bit0 means frequency difference value.

01H means the frequency difference value is +64HZ ; FFH means the frequency difference value is -64HZ.

Example:

The set value for LPO frequency calibration is 28000HZ , and the actual value from IC is LPO=28128HZ. The calculation is  $(28128-28000)/64 = 128/64 = 2$ , therefore the code 0FFH will be **0000 0010b**

Example1:

The set value for LPO frequency calibration is 28000HZ , and the actual value from IC is LPO=27872HZ. The calculation is  $(27872-28000)/64 = -128/64 = -2$ , therefore the code 0FFH will be **1111 1110b**

When Interface Setup finished, please press “close” and all the set parameters will be saved. Next time, when you open the file, it will load the record parameters automatically and the IC model No. will be displayed on the headline of window as Figure 76.

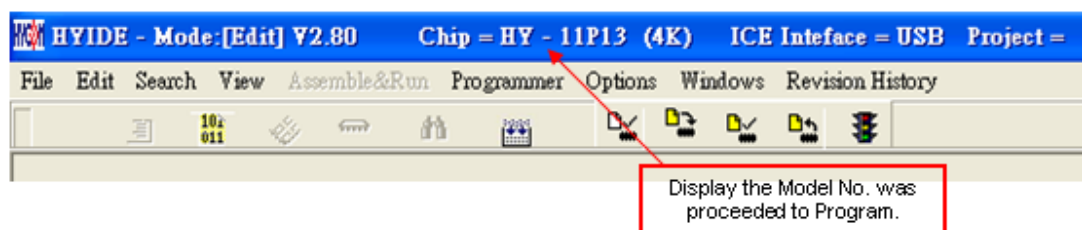


Figure 71



### 4.2 Operation Procedures

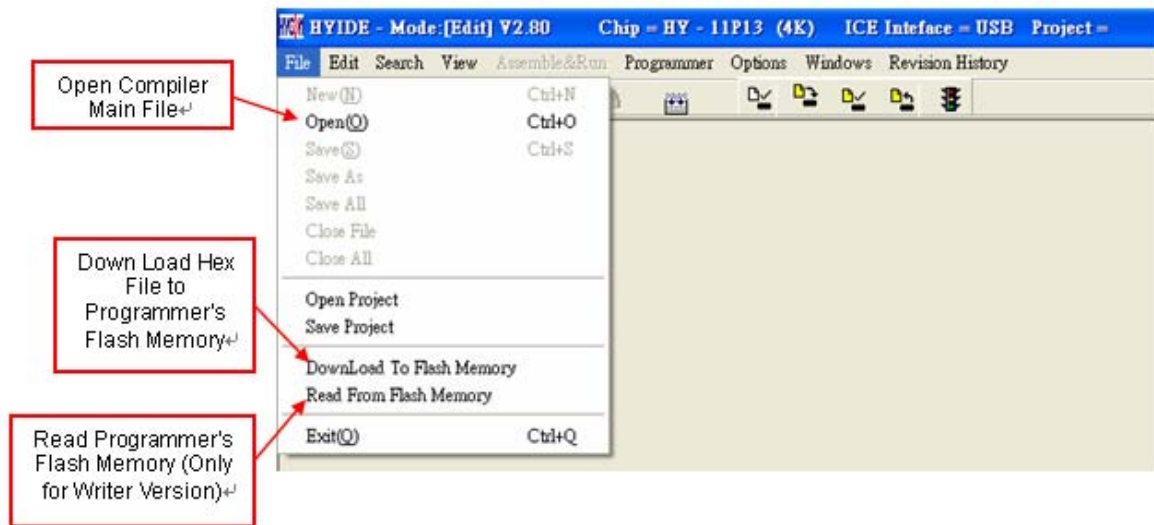


Figure 72

Open → Open the programmed source code main file.

Open Project → Open the saved project.

Save Project → Save the finished project.

Download file to Flash Memory → Download the finished Hex file after assembly to programmer or IDE Flash Memory.

Read the code from Flash Memory → Read the code of programmer Flash Memory.

(Attention: if the code was protective, the data will not be revealed.)

### 4.2.1 Open file and Assembly

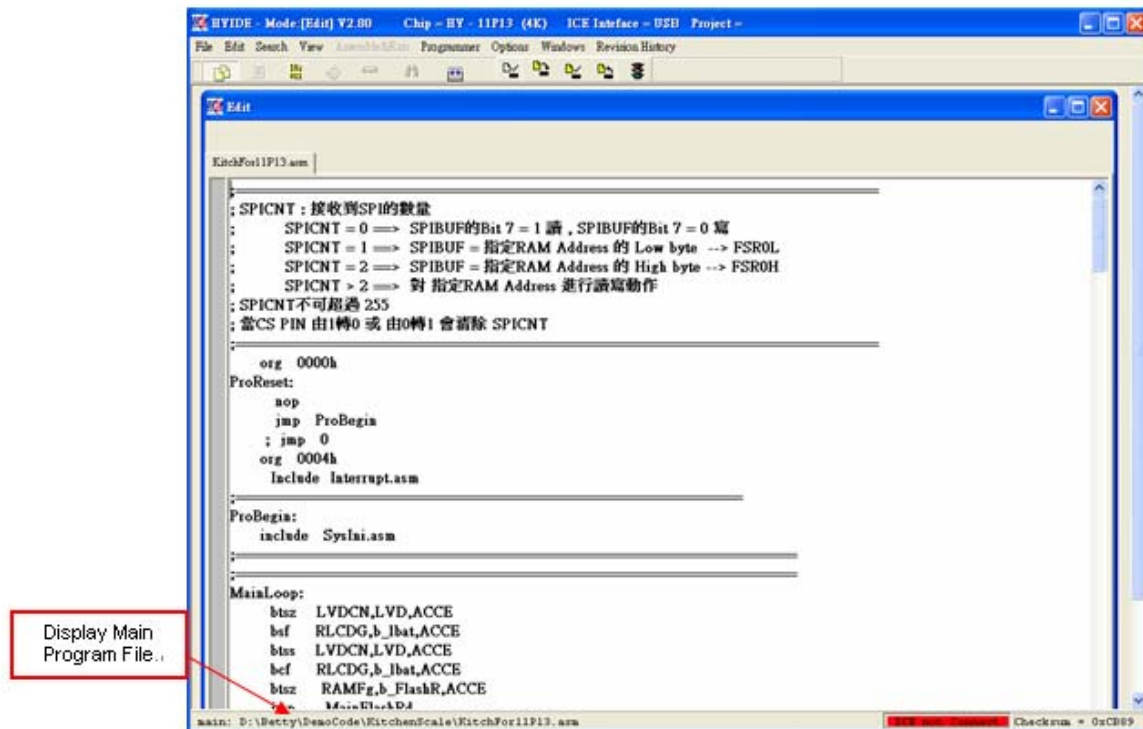


Figure 73

Open source code main file and it will be displayed as the assembly file. If the displayed name differs from main file, points the mouse to the specific file and presses mouse right key. Set this file as the assembly main file as shown in Figure 79.

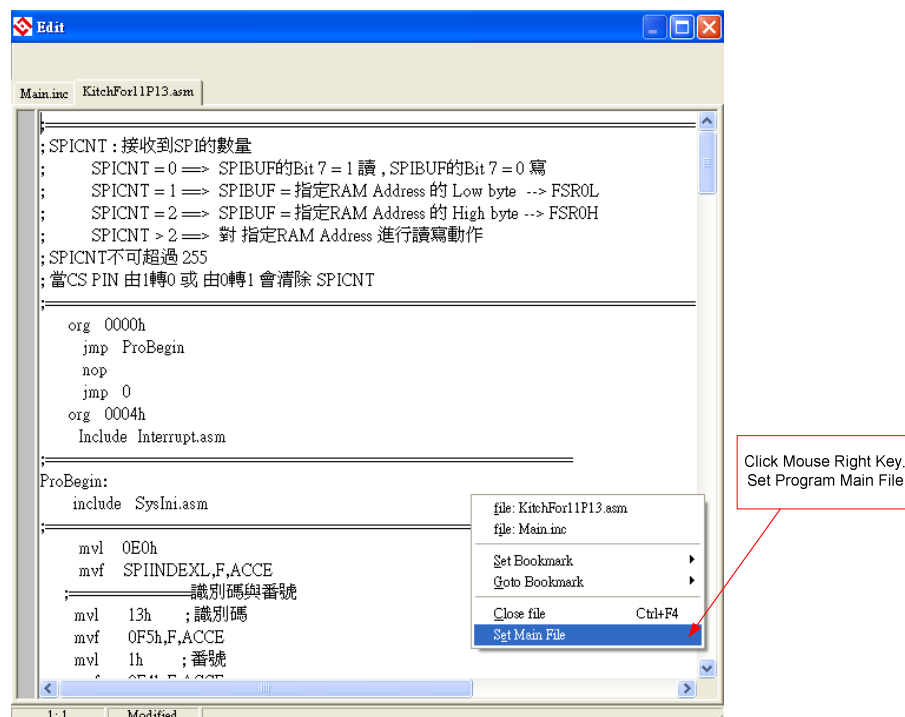


Figure 74

Assembles Source Code and download the file to programmer or IDE Flash Memory, as Figure 80 illustrated.

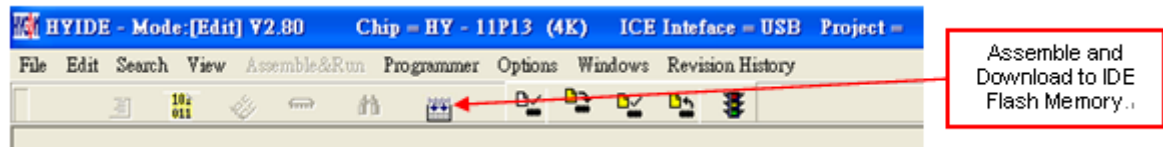


Figure 75

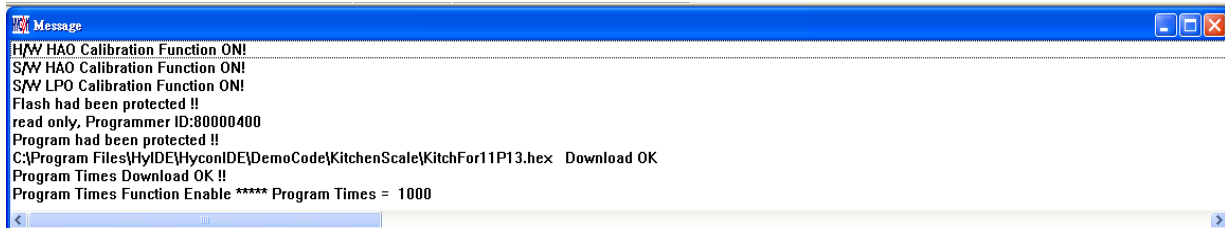


Figure 76

1. When using USB interface, the assembly finished program code will be loaded into programmer or Flash Memory of IDE for mass production programming.
2. If there is enabled program times in the assembly option, information column will display the programming times as shown in Figure 81.
3. After assembling completed, Hex filename and Checksum will be displayed in underneath section, as Figure 82 illustrated.

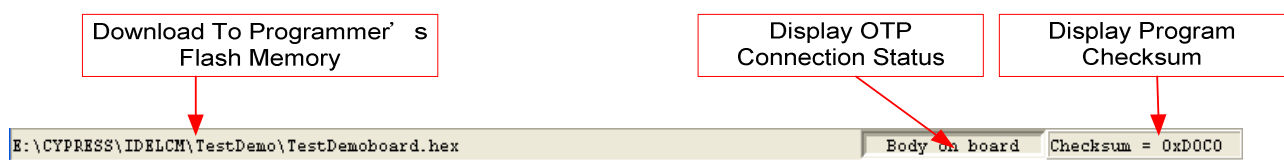


Figure 77

### 4.2.2 Download Hex File

**HYCON-IDE 3.0** no longer supports Hex File download function. If users would like to download the Hex File, please download it by HY-Hex Loader software and follow the guidance of user manual.

### 4.3 PC Online OTP Programming

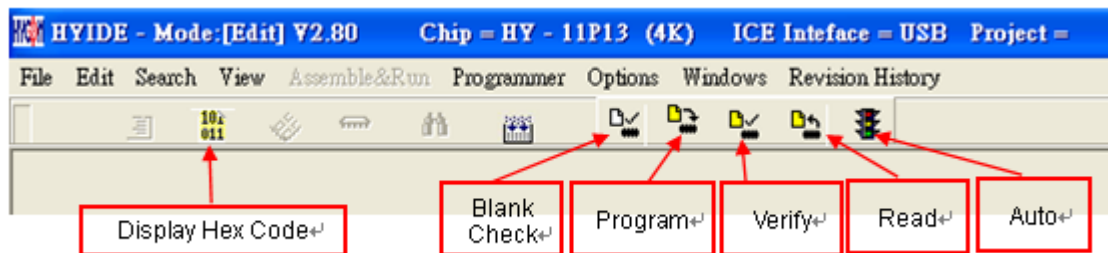


Figure 78

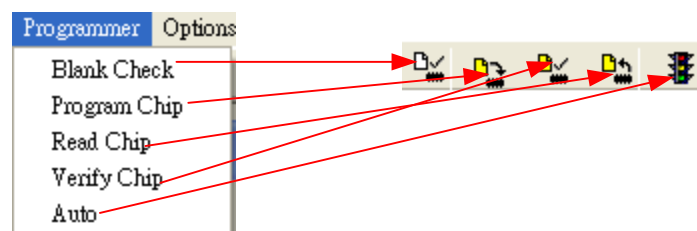


Figure 79

Blank Check, Programming, Verify and Read Commands can be implemented when the programmed file being successfully loaded into programmer or IDE Flash Memory. On the contrary those commands will not be activated if the download failed.



Figure 80



Figure 81



Figure 82

Make sure the selected programming IC part number is the same with the OTP part number in the topic window as Figure 76 described. When programmer executes Blank Check, Programming and Verify commands, Program will check whether the IC part number and OTP programming part number are identical. If the part number is different, the data will not be written into OTP and an error message will be displayed in information column as Figure 86 described.


If users intend to find out whether the part number is correct before programming, point the cursor

to "IC Connection Status Display" and click the mouse left key. If the selected IC is correct, a message will show up as Figure 87. If it is incorrect, the message will be displayed as Figure 88. If "Enable Program Times" has been marked up, the spare program times will display in the message column as Figure 89 illustrated.



Figure 83

### 4.3.1 Blank Check

The icon of Blank check is , The internal code of Blank ICs that have yet been programmed is 0xFFFF. The purpose of checking the IC is to make sure the OTP address content is 0xFFFF. If the IC selection is correct and the content is empty, a message will appear as Figure 90.

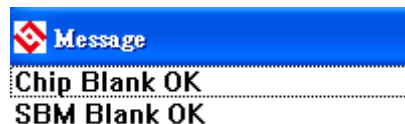



Figure 84

If the IC selection is incorrect or the content is not empty, a message will show up as Figure 91 described.



Figure 85

### 4.3.2 Program

The icon of Program is . The purpose of programming is to write Compiler accomplished program into IC OTP. When programming is completed and the IC is assembled as finished goods, programmer can operate the program as users commanded.

Program the downloaded or assembly finished Hex file (displayed at the bottom of the column) in the selected IC and verify the correctness of the programming content (please refer to Chapter 4.2.1 or 4.2.2 for programming procedures).

If the selected IC is correct and the programming succeeds, message will appear at the

information column as Figure 92 illustrated. If “Enable Program Times” is ticked up, the enable program times will minus 1 and the program times left will be revealed in the message column.

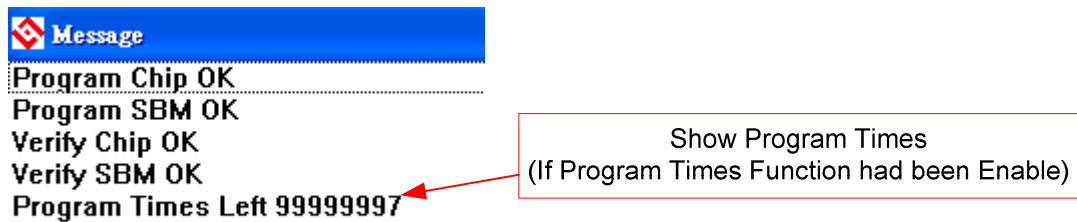



Figure 86

If the IC selection is incorrect or the programming fails, a message will show up as Figure 93.



Figure 87

### 4.3.3 Verify

The icon of Verify is . The purpose to verify programming IC is to compare if the program written into IC OTP equals to the program downloaded to programmer or IDE Flash Memory.

Verify programming IC content consistency with the downloaded or assembled Hex file (displayed at the bottom of the column). If the IC is protected by program, this verification is ineffective or the comparison failed.

If IC selection and program verification is success, a message will appear as Figure 94.




Figure 88

If IC selection is incorrect or the program verification miscarries, a message will pop up as Figure 95.



Figure 89

### 4.3.4 Read

The icon of Read is . The purpose to read the IC is to verify the consistency of OTP

Checksum and programmed Hex file. To read IC content, the procedures are illustrated as Figure 96. Its content will reveal at "Display Code" window.

If the IC is protected by program, this function is ineffective or the comparison failed.

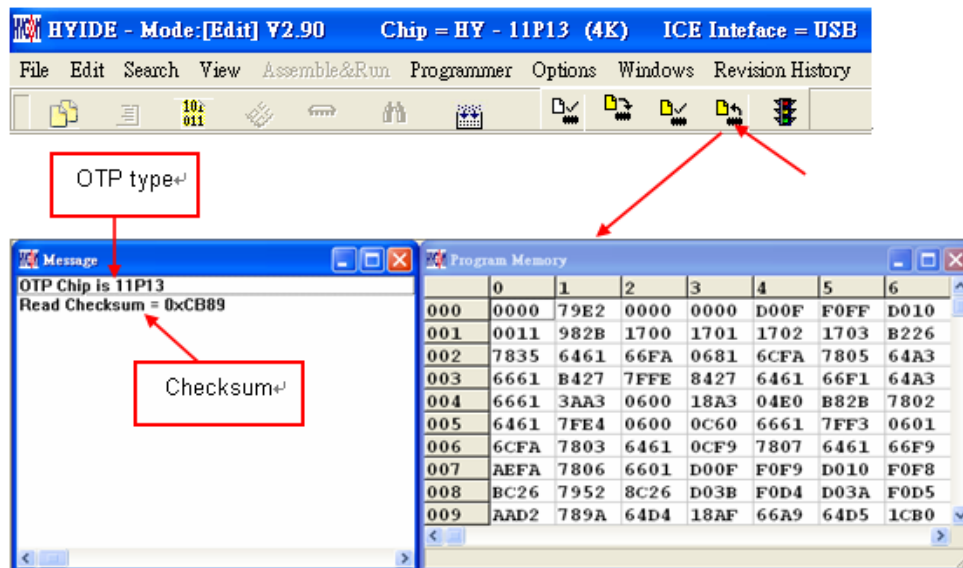



Figure 90

### 4.3.5 Auto

The icon of Auto is . Auto integrates Blank Check, Program and Verify function. If user selects Auto, it will first check whether the IC is blank, then to program and verify.

After the execution succeeded, a message will be displayed as Figure 97 displayed. If the option, "Enable Program Times" is ticked up, the program permitted times will reduce 1 and the program times left will be shown in the message column.



Figure 91

If any function fails, the whole process will stop and display an error message in the message column.



### 4.4 PC Offline Programming

#### 4.4.1 Program Description

As the development process evolves to mass-production, the programmer can be used alone when programming on the production line. It is not necessary to connect the programmer to the PC.

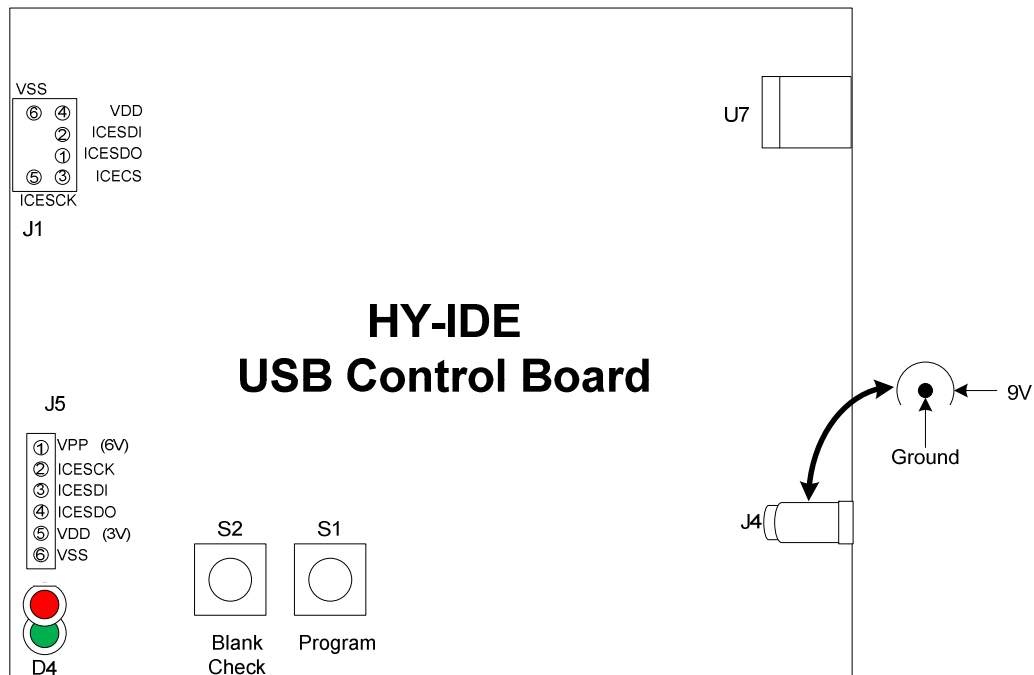



Figure 92

- ◆ J4 : Adapter 9V input , used when programming OTP.
- ◆ U7 : USB connector to PC end
  - Downloading program for emulation and debug.
  - Downloading programming code for HY11P series.
- ◆ J5 : Programming control end of HY11P series and is connected to OTP.
 

PIN 1	VPP(6V)	connected to VPP of IC
PIN 2	ICECK	connected to PSCK of IC
PIN 3	ICESDI	connected to PSDI of IC
PIN 4	ICESDO	connected to PSDO of IC
PIN 5	VDD(3V)	connected to VDD of IC
PIN 6	VSS	connected to VSS of IC
- ◆ S1 : Programming button (Program→Verify), for offline program operation.
- ◆ S2 : Blank Check button, for offline operation.
- ◆ D4 : Two-color LED,
  - Red LED: OTP Programming 、Blank Check...etc. Failure signal.
  - Green LED : OTP Programming 、Blank Check...etc. Success signal.
  - Green LED : USB or Adapter is Power-on signal.

# HY11S14

## HYCON-IDE Software User's Manual

Figure 99 as below shows program file is downloading and the connected way of Control Board and IC in programming upon PC Online Programming.



Figure 93

Figure 100 as below shows program file has been downloaded and the connected way of Control Board and IC in programming upon PC Offline Programming.



Figure 94

- To implement offline operation, Hex file must be firstly downloaded to programmer Flash Memory. The procedure can refer to chapter 4.2.1 or chapter 4.2.2.
- To implement offline operation, press S2 button can check if the IC is blank and the D4 Green LED should be lighted up.
- S1 Button is programming button. Its procedures are: Blank Check → Program → Verify.

If "Program Protection" of "Assemble Option" is picked up before downloading data to Flash Memory, program protection will be executed after Verify completed. If "Program Protection" is not picked up, it will stop after Verify accomplished and D4 Green LED will be lighted up.

- When Programming finished, please press S2 to check if the IC is blank. At this moment, the D4 Red LED should be lighted up means the programming is success (because the data has been programmed into IC, so Blank Check is failed.)
- If any failure or error happened during execution procedures, D4 Red LED will be lightened up. On the contrary, D4 Green LED will be lighted up if success.

### 4.4.2 Program Times Restriction

The menu of "Assemble Option" in interface setup has an option of "Enable Program Times" as described Figure 73. This option restricts the permitted program times of download program.

This is a safety mechanism that restrains the permitted program times, preventing it from over-programming on the production line.

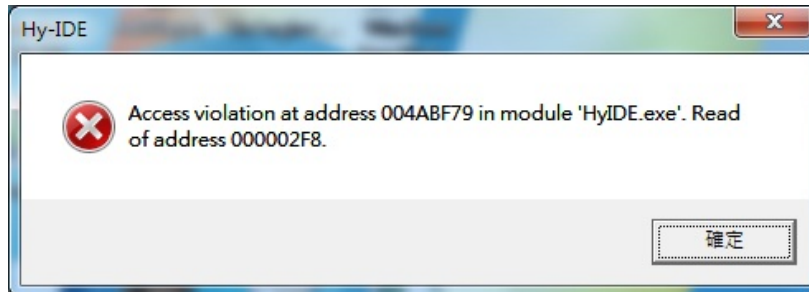
This is a safety mechanism that restrains the permitted program times, preventing it from over-programming on the production line.

After ticking up "Enable Program Times", key in the program times in the column below "Input Program Times" (maximum is 99999999, minimum is 1). This argument will be written into EEPROM of the programmer after the compiler programmed file is downloaded to Flash Memory. Afterwards, the enabled program times will reduce 1 each time when programming completed. If the value reduced to 0, the programming action may not be executed. At this time, an error signal (Red LED) will be lighted up but Blank Check still operates normally.

## 5. Troubleshooting

### 5.1 HYCON-IDE Execution Problem

If the following message popped out, it means HYCON-IDE can't be executed normally.



The problem might be happened under Microsoft Vista or Windows 7 system environment. To avoid the problem, the limit of authority for HYCON-IDE execution has to be set as system administrator to execute HYCON-IDE by administrator status.

### 6. Revision History

Major differences are stated thereafter:

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Version	Page	Revision Summary
V03	ALL	First edition
V04	5	Deleted Program version compatibility.
	54	Updated points for attention before using the function of "OSC Calibration"
	60	Revised the description of Download Hex File.